LA REVUE AGRICOLE DE L'ILE MAURICE

IMPERIAL MYCOLOGICAL INSTITUTE
21 JULY 194

MARS - AVRIL 1944

VOL. XXIII N° 2 MARS-AVRIL 1941

LA REVUE AGRICOLE

DE

L'ILE MAURICE

RÉDACTEUR : P. O. WIEHE

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MAURICE

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THE GENERAL PRINTING & STATIONERY COMPANY LIMITED

T. ESCLAPON—Administrateur

23. RUE SIR WILLIAM NEWTON

—

1944

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ILE MAURICE . . . Rs. 12 PAR AN
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NOTES ET COMMENTAIRES

Sur les propriétés : M. Noël Hardy est nommé administrateur d'Union-Vale, il est remplacé à Britannia par M. H. Fenouillot de Falbert qui prend la direction des champs. M. Roger Bax est nommé chef d'usine de Mon Désert-Mon Trésor, M. René Noël le remplace à Terracine comme chimiste. M. Robert de Spéville prend la direction de l'usine de Saint Félix. A Bel Ombre MM. F. Robert et O. Davidsen sont nommés chef des champs et chimiste respectivement.

Comme on le verra plus loin dans la Revue l'extraction de la coupe 1913 a atteint le chiffre record de 12.11%. L'extraction la plus élevée que l'on avait obtenue jusqu'ici était de 11.95 o/o en 1938.

La pluviométrie du mois de mars a été exceptionnellement élevée en raison des inondations qui ont eu lieu dans la semaine du 8 au 15. Bien que toutes les régions de l'île aient été abondamment arrosées, c'est surtout les hauts plateaux qui ont reçu un fort volume d'eau.

Voici la pluviométrie de quelques endroits :

	Curepipe (Collège Royal)	La Flora	St. Avold
7 Mars ...	7.29 pouces	5.65 pouces	6.15 pouces
8 „ ...	14.42 „	10.15 „	7.90 „
9 „ ...	1.34 „	4.81 „	2.90 „
10 „ ...	7.98 „	9.80 „	8.80 „

Rappelons qu'il y eut une chute de grêle qui dura environ un quart d'heure au Cap Malheureux dans la matinée du 8 mars. Les grêlons étaient environ de la grosseur d'une graine de filao. La région où l'on observa la chute de grêle s'étendait du village de Petit Raffray jusqu'à Beau Manguier.

Nous apprenons que le Breeder's Club fera paraître bientôt un bulletin mensuel intitulé Breeder's News. C'est une excellente initiative et nous souhaitons plein succès à cette nouvelle publication.

Nous parlions l'année dernière des semences potagères que s'occupait de produire le Département d'Agriculture. Bien que la première année ait été plutôt expérimentale, le Département a vendu entre autres semences

aux marchands grainiers, 40 kgs. de haricots, 2 kg. de carottes, 2 kg. de choux-fleurs, 6 kgs. de laitue, 3½ kgs. de salsifis.

L'on espère augmenter sensiblement la production en 1944, à l'exception des graines de choux, betteraves et choux-navets qui sont très difficiles à obtenir sous notre climat.

Voici quelques notes sur les graines de bois noir (*Albizzia Lebbek*) comme aliment pour le bétail : les cosses sèches moulues peuvent être utilisées comme absorbant dans un mélange alimentaire. Les cosses contiennent des graines dures et lisses qui après concassage sont un aliment azoté important contenant 27 o/o de matières azotées pour 100 de graines, les cosses entières donnant 10.5 o/o de matières azotées. Pour l'alimentation du bétail de même que pour les graines d'accacia une cuisson est nécessaire.

Dans le numéro d'octobre du " Journal of the Royal Horticultural Society " un correspondant cite d'intéressants passages d'une lettre d'un officier décrivant comment l'avance de la 8me Armée en Afrique du Nord a progressé avec la saison des fleurs des champs qui commence en décembre dans la région de Tobruck et atteint son apogée en avril en Tunisie. Le correspondant parle d'étendues considérables de giroflées mauves, dans les environs du golfe de Syrte et dont le parfum se faisait sentir à plus de deux milles de distance, de tapis de coquelicots rouges et de pyrèthre jaune d'or, de champs de glaïeuls sauvages rose, et de délicats iris jaunes.

" Indian Farming " d'octobre 1943 publie un intéressant article sur l'élevage des poissons dans les rizières du Bengale. En généralisant cette opération il est estimé que les revenus de la province augmenteraient de Rs. 50 millions par année, et aiderait considérablement à résoudre le problème alimentaire. Le développement des poissons dans les rizières est très rapide étant donné la richesse du plankton. Un autre avantage est que les poissons en nageant secouent les touffes de riz, et les insectes qui pourraient s'y trouver tombent et sont dévorés, de plus les mauvaises herbes sont détruites et les excréments des poissons enrichissent le sol. Cette pratique est courante au Japon où certains poissons sont distribués gratuitement dans ce but.

La prochaine livraison de la Revue contiendra des notes sur le cyclone du 8-11 Avril et ses effets sur l'agriculture du pays.

THE ESTABLISHMENT AND EARLY YEARS OF THE MAURITIUS AGRICULTURAL BANK

W. R. OWENS
Chairman, Mauritius Agricultural Bank

The bank opened its doors in January 1937. It has thus been trading for seven years. As this is the first account of it to be published in Mauritius, it may be fitting to begin with a little history.

In August 1908, Sir Louis Souchon, in the Council of Government, moved a motion asking for a land bank. Before the Royal Commission in 1909 he, Sir Henri Leclézio, and other witnesses, favoured the establishment of a bank like the then new Transvaal Land & Agricultural Bank.

The subject was before Council in 1934, 1935, and 1936. In the debates one member, who favoured a bank to give crop loans, said a mortgage bank would end in Government having to seize estates. Others thought a mortgage bank would not be of permanent assistance to the sugar industry ; having in a short time " allocated " its funds it would only exist as an onerous organisation for collecting annuities ; the fact that Rs. 10 millions was the maximum to be held at the bank's disposal for an indefinite period emphasized how inefficient such a bank would be. In March 1936 the bill to set up the bank was before Council. One member moved that the minimum loan be Rs. 2,400 instead of Rs. 5,000 as in the bill. His amendment was put and lost. When the bank was a few months old the question was re-opened by the Secretariat, by certain members of Council, and during the sitting of the Unrest Commission 1937, by " petits planteurs ". The Commission recommended : " if possible the limit of Rs. 5,000 should be reduced to Rs. 1,000 ". The sequel came in 1940 when the Rs. 5,000 limit was abolished by law. The bank works under Ordinances 1 of 1936 ; 51 of 1938 ; 40, 41, and 42 of 1940 ; now consolidated in a bill which was passed by Council last March.

The very earliest reference which I have seen to an agricultural bank is this from " Annuaire Agricole, 1910, édité par Henri Robert " : " 1/5/1842. Une loi force l'Agricultural Bank à retirer de la circulation son papier monnaie ". I have not been able to identify this institution but think the reference must be to " La Banque de l'Agriculture " which did not last long.

Another early record is in the Annual Report of the President (Mr Christian Wiehé) of the Chamber of Agriculture 1861. Along with

the Report two letters are printed, each without a date, the first from M. Delabarre de Nanteuil and the other from M. Alfred Harel. The former after urging the need for new legislation, wrote.

> " ... Cette loi vous l'avez sans doute déjà pressentie, Monsieur le Président, est celle du 23 Mars 1855, sur la transcription en matière hypothécaire ".
>
> "... Finalement et en d'autres termes, l'institution dans la Colonie d'une Banque Agricole, répondrait à la fois aux besoins réels de la dette hypothécaire actuelle, du Crédit Foncier et de l'Economie Politique, mais à la condition expresse de l'extinction forcée de la dette et du remboursement des capitaux, empruntés au moyen du mécanisme des intérêts composés ".

M. Alfred Harel, wrote *inter alia* :

> " Le Crédit Foncier, quand il s'agit de prêts à long terme, n'exige pas, on le sait, la restitution du capital prêté. L'emprunteur a-t-il payé les dix pour cent dus, pendant vingt ans, il est libéré ! Encore une fois, point de restitution du capital : avantage immense qu'aucun capitaliste, qu'aucune banque ne pourraient accorder... Il est aisé de servir des intérêts annuellement, au moyen des revenus de la terre ; mais le difficile c'est de payer le capital. La libération du sol colonial, voilà donc le but spécial, le précieux bienfait du Crédit Foncier ".
>
> "... Si le pays est sympathique au Crédit Foncier, s'il en souhaite l'introduction, convaincu que cette institution servirait puissamment l'agriculture, ne devrait-il pas, afin d'indiquer son vœu d'une manière réelle et sérieuse, et afin d'encourager en même temps l'initiative de la Compagnie Française, souscrire conditionellement un certain nombre d'actions du Crédit Foncier ? "

It is to be noted that : (1) " la loi sur la transcription en matière hypothécaire" was enacted in 1863 (Ordinance 36 of 1863) (2) The Crédit Foncier of Mauritius Ltd was established in 1864, and the Crédit Foncier de l'Ile Maurice about the beginning of 1867 according to Macmillan's MAURITIUS ILLUSTRATED. (3) By "loi du 24 Juillet 1921" deeds are no longer transcribed in France, a certified copy is filed with the Conservator of Mortgages ; similarly inscriptions of mortgages are no longer copied out in the registers. It ought to cheapen the cost of deeds required by the bank if here, too, this copying were done away with. Registration, which Sir Henri Leclézio told the 1909 Commission was of Dutch origin, would of course be retained.

An official publication said that the bank was set up to assist in the creation of sound long-term credit for agriculture by spreading repayment of loans over a period of years and to reduce rates of interest

which, to quote the Treasurer's Financial Report, 1936-37, impose "an undue burden on the sugar industry and unduly depress wages." This burden bulked large in speeches of members of Council who supported the bill in 1936. It is well that there should be men who gird at high rates of interest, though one who has done 40 years in banking may not be expected to be amongst them.

Although there was at first a minimum loan, there was no maximum. This was unusual for an empire government-aided bank. The South African Land Bank worked under a minimum of £ 50 and a maximum of £ 3,000 which was recently increased and is now, I think, £ 5,000. The Ceylon bank, whose law was the model upon which Ordinance 1 of 1936 was based, started with a minimum of Rs. 5,000, maximum Rs. 150,000. These were altered to Rs. 2,500 and Rs. 500,000 in 1937, and later to Rs. 2,000 and Rs. 1 million respectively. The Ceylon bank has widened the scope of its operations. The Mauritius Agricultural Bank to-day has several loans running into six figures and one of seven. It is almost certain that if the bank had not granted these loans it would not have brought down the rate of interest as quickly as it did, from an average higher than 7% p. a. before it began trading.

Another point bearing on this question which was also to the fore in the debates in 1934, 1935, and 1936 is that of how far Government would go in financing the bank. Some people say it had determined not to go beyond Rs. 10 millions This was not so Sir Wilfrid Jackson's minute of April 1935 to the Council thought that some limit ought to be fixed. In the first instance, he said the amount to be raised should be Rs. 10 millions. But: "It is not suggested that if the bank proves to be entirely successful this limit can never be extended". He added that if the capital was limited the amount of the maximum loan would also have to be limited. As I have said there never was an upper limit.

An approximation of the amount of mortgages on agricultural land would have been a guide as to the amount likely to be needed. An attempt was made in 1938 to estimate how much it was from data in the bank's files including mortgages by factories which made 41.5% of the 1937 output as well as those by the owners of one-sixth of all land under sugar. Allowance was made for the probability that this data applied to the most heavily burdened land. The conclusion was that the total was in the neighbourhood of Rs. 35 millions. There was no means of knowing how near this was to the truth. Estimates given to me the year before were in every case lower.

Contrariwise, estimates of the sum needed to enable the bank to do the work it was set up to do were much higher than was found to be the case. Several friends told me that at least Rs. 20 millions would be needed.

However, amongst those who have made their money here there are men who like to keep it invested here and these people were not going to lose good investments for the sake of 2% per annum or so. They reduced their rates and kept their mortgages.

Altogether the bank has put out Rs. 12,152,685. The borrowers' initial annual saving in interest exceeds Rs. 250,000. During the same seven years mortgages to other parties over agricultural land, at the bank's rates or lower, registered by the Conservator, aggregated Rs. 11,924,345. The average rate on this Rs. 24,077,030, spread over the years is

1937	6.16 o/o
1938	6.24 o/o
1939	5.98 o/o
1940	6.73 o/o
1941	6.55 o/o
1942	5.93 o/o
1943	5.56 o/o

No doubt the outbreak of war in September 1939 had its effect on the upward trend thereafter, but in my opinion, if Government had acted on the advice given to it by the bank's board, the downward movement would scarcely have stopped. Nor need this have been accompanied by any increase in the bank's loans. The lower rates ruling during the past two years are due mainly, of course, to the plethora of credit.

The bank also was instrumental in helping the planting community to get on a sounder financial footing. Before they were able to avail of its facilities a number of companies had to increase capital — not so popular in 1937 as it became later. The total increase of those who took loans up to June 1938 was Rs. 2,125,255. Debts had to be scaled down ; the amount written off by creditors of all customers up to the same date was Rs. 1,655,260.

Repayment of loans is by half-yearly equated payments calculated so " as to ensure redemption of the capital and interest at the expiry of the time for which the loans are made ". In a paper read to the Economic Society of South Africa in February 1939 I thought " a better system of repayment would have been so many equal half-yearly instalments plus interest ". I did not know then of the Harelian hypothesis. Looking back, it seems that it would have suited borrowers better if they had contracted to repay capital in equal instalments plus interest. Compared to those which went before, the years during the bank's lifetime have been good. Estates could easily have reduced mortgage debt quicker. Had that been so, the bank's competition, specially up to two years ago, would have done more to bring down interest rates.

Its earliest customers have now met 13 instalments. Those who took 30-year loans at 5% have met equated payments (3.235% half-yearly) aggregating 42% of which 11.13% is capital. Under the other system they would have paid 50.9% of which 21.7% capital ; as thereunder total payments are 18 points (176% against 194%) less than under the Crédit Foncier system, these customers would have had much lighter instalments ahead of them than they now have.

Partly to be able to keep its finger on the running worth of mortgages, the board at an early meeting adopted this formula: Revenue minus "faisance valoir" equals working profit; average working profit for the most recent 6 years multiplied by 10 gives, for this purpose, the current value of the security. Five of six directors around the table settled upon 5 years which then, March 1937, meant 1932-36. This truly included a drought year more harmful to the crop than any since 1896 but it was too soon for the late Gaston Antelme ; who afterwards became my good friend and sound counsellor, to forget the 1931 hurricane. He would be no party to misleading a new comer about the parlous state of the industry ! He insisted upon 6 years, so the board made it 6. By August 1937 it was common knowledge that the substitution of 1937 for 1931 in the 6-year bracket was going to present a prettier picture and for all practical purposes this section of the bank's record of aggregates begins with the working profit 1932-37.

In the 6 years 1931-36 the industry made sugar at the rate of 238,732 tons a year, selling it at an average of more than Rs. 28 millions a year. In the following 6 years 1937-42 the tonnage was 305,931 which produced Rs. 44 millions a year. That is, the second period produced Rs. 93.9 millions more than the first. In tonnage and money 1943 will be above the averages of the preceding 6 years. It ought not to be necessary, but I had better add that these figures are only distantly related to profits. If revenue went up, so did expenditure, especially wages and taxation. As, however, most of the bank's customers are repaying capital and interest with less money than, before they took their loans, was needed to pay interest only, it is not surprising that so far engagements have been met. There were no overdue instalments on 31 December 1943.

Figures used for the purposes of the preceding paragraph came from the Sugar Syndicate's printed statements, from the Agricultural Department's official publications, and, as to earlier years, from the Mauritius Almanac. The reader will know that for good reasons these may not be exactly the same for the same year. But if the several calculations were throughout based on one source only, the result would not differ greatly. Similar differences may be found elsewhere ; if so the reason will not be dissimilar. Figures about the bank, of course, were taken from its books.

The balance sheet of 31 December 1943 may be condensed thus :

Liabilities		Assets	
Treasury	Rs. 10,129,421	Loans	Rs. 10,371,880
Payments in advance, Staff and other internal accounts ...	197,102	Cash	155,314
Reserve and P. & L. A/c	208,635	Other assets ...	7,964
	Rs. 10,535,158		Rs. 10,535,158

The amount set against loans was owed by 230 customers who drew Rs. 11,820,235. This sum they used to :

discharge	(a)	mortgages ...	Rs.	8,348,047
	(b)	other debt ...		3,208,304
increase or improve cultivation of ...	(a)	sugar cane ...		128,633
	(b)	other crops ...		135,251
			Rs.	11,820,235

Thus the bank's operations have been confined almost wholly to the transfer of debt from one local creditor to another. There has been little scope for lending to increase cultivation of sugar cane, because the board stopped doing it in June 1937, when following the International Sugar Commission, a quota was allotted and in 1942 such increased cultivation was prohibited by Regulation. Of Rs. 12,152,685 put out from the start, slightly less than 10% was for purposes other than sugar cultivation.

If the reader has seen the printed balance sheet, he may have wondered why the bank holds government securities — included above in the other assets. It is because the board resolved that an amount about equal to the staff's contributions to their own funds should, when possible, be invested outside the bank's business.

An explanation of the most unusual NOTE to the balance sheet may also be appropriate. Like most of its kind the Mauritius Agricultural Bank borrows from the Treasury which, unlike other Treasuries, requires it to meet obligations under sinking-funds for loans, raised by Government to finance the bank, which does not enjoy, moreover, the cheap facility of an overdraft, as do other similar banks. This paying of interest on money which it does not owe now costs the bank more than Rs. 9,500 a year. Twenty years hence, if, no change is made, the cost will have risen to Rs. 65,000 a year. When sinking funds mature, the bank is to get the benefit. If arrangements with the Treasury were like those elsewhere in the empire, the bank's published reserve to-day would be Rs. 271,520 greater than in the balance sheet, and the debt to the Treasury Rs. 271,520 less.

Up to the end of 1943 two hundred and fifty-two loans had been drawn of which 22 had been paid off, leaving 230 outstanding — average Rs. 45,095. The sweetening, already mentioned, of big loans has enabled the board to keep expenses down. Comparison may be made with the similar banks of Kenya and Ceylon whose balance sheet totals are not much smaller than that of Mauritius. Their latest figures available show ratio of working expenses to loans plus farms bought in : Kenya (December 1941) .76 o/o, Ceylon (September 1942) 1.13 o/o, Mauritius (December 1942) .56 o/o. Some borrowers paid off loans because they wanted, and could raise elsewhere, more money on the same land, but most had what I

think was a better reason. These 230 loans are secured by mortgage of nearly one-fifth of the island's land under sugar and other foodstuffs, plus other land and plus machinery (including that of 9 factories) and buildings.

To have a comparatively large proportion of its people owning and working small parcels of land carrying little debt is generally regarded as making for the strength and happiness of a community. The Unrest Commission defined "petit planteur" as one sending less than 1000 tons of cane a year to factories. It may be assumed that these men owned up to 50 acres each. The Commission found that there were 20,000 of them and believed that the majority worked also for estates. Of the 230 loans, 160 are in the names of such men. The amount they owe is less than 10 o/o of the total outstanding.

According to the Agricultural Census 1940, there were 13,931 owners of 20 acres or less, of whom 8,263 owned one acre or less ; it would not pay these last to mortgage their holdings. Of the remaining 5000 odd, only 4 o/o have asked the bank for loans since, in October 1940, it was able to accommodate them. Applications have been coming in slowly for a year or longer. If bigger borrowers are willing to take short loans they can, these days, find them cheaply outside the bank. To a much lesser degree this applies to small men. If they do not need money there is no more to be said. But that there is a demand from " petits planteurs " will be seen from this statement of mortgages up to Rs. 15,000 registered over agricultural land :

	Number	Total	Average	Rate
In 1942 i f.o. the bank	39	Rs. 102,550	Rs. 2,630	5½ o/o
others	121	355,140	2,913	7.96 o/o
Total	160	457,690	2,860	
In 1943 i.f.o. the bank	29	100,155	3,454	5½o/o
others	124	438,593	3,537	6.83 o/o
Total	153	538,748	3,521	

Less than one-fourth were in favour of the bank. Two reasons are put forward : first, the bank takes longer than the private investor to grant loans and second, is apt to lend less per acre. The second is, to some extent, conditioned by Articles 12 and 13 of Ordinance 1 of 1936, and the first largely by the proviso to Article 5 (1) which enacts that all loans must be granted by the board. This I think is always the case with state-

aided banks within the empire. There may be other reasons for this dearth of applications from small holders I am disappointed that such a small proportion of those needing money have, up to now, applied to the bank whose future must lie largely with them.

Looking ahead, this last is only one of the questions now being talked about which is likely to affect the bank's future but it is an important one. Working under the conditions it does, the bank has done all it can to encourage " petits planteurs " to avail of its facilities if needed. It may be that 3 years is not long enough to come to a sound conclusion. During the bank's lifetime another colony (Jamaica) has borrowed a large sum to put small-holders on the land. The CROWN COLONIST for December 1943 prints this paragraph :

> "Up to March 31, 1942, 16104 smallholders had been allotted settlements covering an area of 75,590 acres acquired at a cost of £ 518,930. A deposit (waived in necessitous cases) of 10 per cent of the purchase price is payable in advance by settlers ; the balance is payable by instalments over a period of 10 years."

Our problem is not to put men on the land so much as to keep them there. The means to do so exist. It ought to be an easier task.

Another question facing the industry is the reduction of the number of sugar factories. In Mauritius this is no new idea born of present-day rationalization — blessed word ! The late Mr. Léopold Antelme advocated a few central factories during a debate at the Chamber of Agriculture in 1907. Since then there has been much talk about it. Happily the process has gone on with the minimum of dislocation as may be seen in Mr. Octave Wiehe's fascinating NOS VIEUX MOULINS published recently. It is likely, I should think, that some of our proprietors will try to turn some of the evils arising from this disastrous war into a good channel which will lead towards ever fewer factories and will do so to their own and everybody else's benefit.

Another very old question is that of secondary industries. This war has given new life to more than one lesser industry. I think no one can tell how post-war conditions will affect them. A good deal less than 10 o/o of the bank's loans outstanding on 31 December 1943 was being used for purposes other than sugar-planting, but I see no reason why that proportion cannot be increased if those interested will keep an eye more to improving the quality of their product and lowering the cost of production than to thinking about customs protection when foreign competition again becomes effective.

Lastly, there is the question of insuring growing sugar cane against damage by cyclones, vitally important to the whole community. The board in 1937 and 1938 tried to insure the risk of instalments unpaid because

of strikes and hurricanes. The ideas of underwriters about premium were very different from the board's. Whilst letters were being exchanged customers were themselves insuring some risks, modest reserves were beginning to loom up, and the board thought the bank could well take what risk there was.

This negative result is confirmed in data I have since got together, thanks to the aid of several local gentlemen. A summary of some of the indications are: (1) the question was actively considered by the Chamber of Agriculture nearly 40 years ago (2) about that time underwriters wrote such insurance for planters in the West Indies (3) experience seems to have led underwriters to stop the business (4) in Mauritius a premium of 2½ o/o would probably suffice if the insured undertook the risk of the first 5 o/o, if certain difficulties could be overcome, and if the fund could be opened with a globular sum in case a damaging cyclone came early on (5) insurance against damage by hail, for instance, is common but cyclone damage, amongst other types caused by nature's caprices, seems to present such complexities that farmers in the United States are turning towards a fund to stabilize the yearly yield in areas liable to suffer in this way (6) is the solution here a kind of all-in equalisation fund ?

Points brought out after consideration of local conditions are (1) Ought the scheme to be compulsory ? (2) Can a planter in the north be expected to pay the same premium against hurricane damage as one in certain other parts ? (3) Without great expense, can you (A) after a cyclone, compel the insured to do the work he would have done if he had not been insured ? (B) assess fairly closely the money loss suffered by him through a cyclone ?

This much can be said : if a fund based on 2½ o/o of the sum brought in by the 1937 crop had been opened in January 1938 and continued on the same basis each year until now, it could have paid the 7½ o/o loss estimated for the 1939 cyclone and started 1944 with more than Rs. 5 millions. The problems of splitting up individual risks, claims, and settlements, remain.

No one is better aware than I of the fact that the leaders of the industry have their hands full of urgent important matters. I do not want to add needlessly to their burden by starting a hare which may lead to nothing but talk. I give publicity to these *indications* in the hope that there may be readers who can contribute facts to help in drawing up a scheme which would appeal to the big majority of planters large and small. If such a scheme can be drawn up it is not too much I think to expect that one result would be to reduce the risk of lending money to planters and consequently to lower the rate of interest still further.

THE UBA REPLACEMENT SCHEME*

N. CRAIG
Officer in charge Sugar Cane Research Station

In brief, the results of this work may happily be described as " The Success of a Mission. "

At the start of the crop of 1937-38, troubles broke out in certain areas of the colony one of the contributory causes being a reduction in price of 15 o/o paid for certain low-grade varieties of cane, which may be collectively known as " Uba de Rich Fund" cane varieties. The relevant portion of the Report of the Commission of Enquiry into unrest on Sugar Estates in Mauritius, 1937, is given in Annexure I. A large amount of these varieties were grown in the St. Julien d'Hotman, Lallmatie areas. Subsequently an Advisory Committee under the chairmanship of Mr. M. M. d'Unienville, with the following gentlemen as members, Messrs. G. Lenoir, S. Seerbookhun and N. Craig, was appointed to advise upon the solution of the problem. Following the tragic death of Mr. S. Seerbookhun in May, 1941, the Honourable A. M. Osman was appointed to replace him. The Officer-in charge of the Sugar-cane Research Station was appointed executive officer in charge of the scheme, and Mr. E. M. d'Unienville was put in charge of the actual field work in the St. Julien d'Hotman, Lallmatie etc., areas.

The Advisory Committee had frequent prolonged discussions on the matter, and separate schemes were evolved for the St. Julien d'Hotman, Lallmatie areas where the proportion of low-grade canes was high, and for the rest of the Colony where the proportion was lower. The main outlines of these schemes are given below :

St. Julien d'Hotman, Lallmatie etc., areas

As the result of investigations it was discovered that at St. Julien d'Hotman the proportion of Rich Fund canes was lower than in the other areas, and consequently differences were made. In general it was decided that planters should be given five years from the 1939-40 crop in which to replace all these low grade varieties, and that after the termination of the 1943-44 crops factories drawing cane from this district should be entitled to refuse to accept any canes of the Uba de Rich Fund varieties. As a result of examination of these canes at the factories, it was decided that the final reduction in price to be paid for these varieties should be 22 o/o The incidence of this cut however was different in the St. Julien d'Hotman area from the remainder, the reduction year by year being given below. Moreover the further planting of these varieties was to be discontinued.

* Report laid on the table of the Council of Government in February 1944.

1939–40	9o/o	9o/o
1940–41	⅔ of final reduction	50o/o of final reduction
1941–42	100o/o „	75o/o „
1942–43	100o/o „	100o/o „
1943–44	100o/o „	100o/o „

Legal weight was given to these decisions by the passing of the Uba de Rich Fund Cane Varieties (Restriction) Ordinance, 1939, and by Proclamation No. 18 of 1939. Proclamations were subsequently issued each year fixing the amount of reduction for these areas. A copy of the Ordinance is attached (Annexure II).

All areas in the colony other than those mentioned above

Proclamation No. 20 of 1940, issued under the Uba de Rich Fund Cane Varieties (Restriction) Ordinance, 1930, prohibited the further planting of these varieties, and this and other proclamations issued in subsequent years laid down the reductions to be made in the price paid for these varieties, as follows :

1940–41	9o/o
1941–42	16.5o/o
1942–43	22.0o/o
1943–44	22 0o/o

The Committee, under the chairmanship of Mr. M. M. d'Unienville, was also to arbitrate in any case of dispute which may arise between miller and planter, but I am pleased to be able to state that the scheme was put into operation with practically no friction between the two parties.

2. The Operation of the Scheme.

It was my duty to see that the scheme was put into operation so that as little hardship would be inflicted on planters as possible, and in this task I have been most ably assisted by Mr. E. M. d'Unienville, especially in the St. Julien d Hotman, Lallmatie etc. areas, where he was in charge of all field work. He was originally appointed in August, 1939, at a salary of Rs. 200 per month, and his salary was increased to Rs. 250 per month from December, 1942. In addition to his salary a sum of Rs. 3,650 was provided for carrying out experiments and for providing planting material during the initial stages of the replacement scheme free of charge. The total cost of the scheme therefore up to the end of the present financial year will be Rs. 18,284.

The soils in the areas under Mr. E. M. d'Unienville's supervision were of decidedly inferior types, and moreover the system of cultivation had been extremely poor, and consequently there was no reliable information as to what varieties could be expected to succeed. Indeed it was necessary to make radical changes in the cultural and manurial practices.

before there was any real hope that the better quality varieties would succeed. Several small demonstration plots were started, each plot having two objects : first to show the effect of phosphatic fertilizers and secondly to find the best variety for the conditions encountered there. None of these plots was conducted on a lay-out capable of statistical analysis, but the owners of the several plots did the work themselves, and could observe the results ; these being found good, the improved methods of cultivation were soon adopted. The battle was then half won, all that remained was to find one or more superior varieties suitable to the locality. The first trials were made with M. 27/16, M. 13/18, P.O.J. 2727 and P.O.J. 2878, but none of these proved eminently suitable, although many thousands of cuttings of the first two were provided free of charge. Next the recently released Sugarcane Research Station cane varieties were tried, with most happy results. The variety which has become most popular and which is now giving better results in the field than the original low grade varieties of great vegetative vigour is the M. 134/32, which is now the predominent cane variety in an area where the " Ubas " were most common.

This big change, described in a few lines, is very largely due to the manner in which Mr. d'Unienville dealt with the planters. His untiring energy, his patience, tact and zeal resulted in the planters having great faith in him, and it is at least partially due to this, that this festering sore has been so readily healed. I would also point out that many planters volunteered to plant small demonstration plots, which indicates the faith they had in our work and also shows that they are willing and eager to learn. The printed word, however, means little to them ; they require to have the benefits of certain methods proved to them in the conditions which they know. I may also point out that the presence of several Co-operative Credit Societies was also a great help, in that a body of small planters could be dealt with collectively, instead of individually.

The task of replacement is to all intents and purposes complete, a mere 41 tons of low grade varieties having been sent to the mills in 1943-44 compared with 96,050 tons of good varieties. The progressive decrease of the Ubas with the corresponding increase of good varieties is shown in Annexure III. Another point which is indicated by this annexure is that the total weight of canes supplied by the small planters has actually increased during the period of replacement, but whether this is due to an increased yield per arpent, or to an increased area under cane cultivation is not clear. It seems not unlikely, however, that the total yield will still continue to increase, as more of the older " good " varieties are replaced by the newer seedling canes, notably M. 134/32. For the time being, at least, there is little danger of new low-grade varieties of great vegetative vigour being propagated, for the simple reason that they are not able to compete in vigour with the M. 134/32. As new varieties which are likely to be suitable to this area are released, I intend to send planting material for propagation purposes.

3. Replacement in the remainder of the Colony.

The amount of Uba de Rich Fund canes in the remainder of the Colony was generally insufficient to warrant intensive work of the nature conducted in the St. Julien d'Hotman, Lallmatie, etc. areas and the propaganda work was chiefly carried out by various field officers of the Sugarcane Research Station, by members of the Agricultural Division of the Department of Agriculture, backed up by the Co-operative Credit Societies and by the Managers of Estates. In one area, however, at Solférino, where the proportion of these low grade varieties was fairly high, it was considered that some field work might be undertaken. In consequence, two small demonstration plots and one small replicated variety trial were planted, the first two on one small replicated variety trial for the La Caverne Co-operative Credit Society. These were conducted under my personal supervision, and satisfactory results have been obtained. In particular the variety trial has given excellent results, and in 1944 the average for the plot was 34.3 tons per arpent in 5th ratoons, with the variety M. 134/32 top with 43.3 tons per arpent. This plot was situated on the main road leading to the Solférino weigh-bridge, and therefore acted as its own propaganda agent. The progress made in the area serving Solférino weighbridge is shown in Annexure IV. The following is an extract from a letter from the Manager of the Factory receiving canes from this weighbridge : " I have noticed an increasing supply of 134/32 during the past two years, and when questioned by me, planters seem very satisfied with this variety which grows splendidly in this region ".

4. General

These are the only two areas from which definite records are available, but these two alone justify the statement that the replacement scheme has been entirely successful. The imposition of a progressive reduction in price without at the same time giving the necessary guidance would in all probability have resulted in failure and in unnecessary friction and complaints. Without the reduced prices, success would have been possible, but it would have taken a much longer time to bring about the elimination of the low grade varieties, with consequent hardship to the miller. It must be admitted that the standard of cultivation etc., on small planters' lands is inferior to that on estates, but the work described in this report indicates that much might be done by proper instruction to increase the yields of small planters. This might be accomplished in two ways : first by the Department of Agriculture through a special staff to carry out demonstration plots and, secondly, by the Estates themselves. A special employee on Estates receiving large quantities of planters' cane, to deal only with the planters, and to advise them, would probably result in an increased tonnage of better quality canes, and it would result in a closer liason between the Estate and planters with a consequent improvement in relations between the two parties.

In conclusion I would like to thank the Chairman and the other members of the Committee who have always been so helpfull, and a special word of thanks is necessary for my assistant Mr. E. M. d'Unienville, who bore the brunt of the battle in the most seriously affected area.

N. CRAIG,

Officer in charge, Sugarcane Research Station.

ANNEXURE I

Extract from the Report of the Commission of Enquiry into Unrest on Sugar Estates in Mauritius, 1937.

389 — (1) The immediate cause of the outbreak of the unrest was the cut of 15 per cent. in the Uba cane carried out by the directions of the manager of the Sans Souci Estate Co. Ltd. (Paragraph 116). This cut itself would not have brought about such a big strike and such a widespread manifestation of discontent had there not been other causes at work as well.

ANNEXURE II

Ordinance No. 22 of 1939

An Ordinance

Enacted by the Governor of Mauritius with the advice and consent of the Council of Government thereof.

To control the planting of "Uba de Riche Fond" Varieties of Sugar Cane.

I assent

B. E. H. CLIFFORD,

Governor.

21st July, 1939.

BE IT ENACTED by the Governor, with the advice and consent of the Council of Government, as follows —

Short title.

1. This Ordinance may be cited as the Uba de Riche Fond Cane Varieties (Restriction) Ordinance, 1939.

Power to prohibit the planting of certain varieties of sugar cane.

2. The Governor may by Proclamation prohibit the planting of Uba de Riche Fond Cane Varieties and define the area or areas to which the prohibition of planting such canes may extend.

3. The Governor may by Proclamation limit the period during which Uba de Riche Fond canes may be grown and may make provision for the progressive decrease in the cultivation of such canes in any specified area or areas. Power to limit period of planting and to provide for gradual decrease.

4. The Governor may by Proclamation prescribe the price to be paid in any year or any period of years by millers or middlemen to planters for any Uba de Riche Fond canes, in respect to which any Proclamation had been issued under powers conferred by Articles 2 and 3 hereof. Price to be paid for certain varieties of cane.

Passed in Council at Port Louis, Island of Mauritius, this eighteenth day of July, one thousand nine hundred and thirty nine.

N. MARTIN MONCAMP,
Clerk of the Council of Government.

Published by order of His Excellency the Governor this twenty-second day of July, one thousand nine hundred and thirty-nine.

CLIVE WATTS,
Acting Colonial Secretary

ANNEXURE III

Weight of Small Planters' Canes Supplied to Sans Souci and Union Flacq Factories since the Beginning of the Uba Replacement Scheme (1939-40 Crop) up to the Present (in Metric Tons).

		St. Julien d'Hotman, Bel Etang and Sans Souci areas	Lallmatie Bon Accueil etc., areas	Total
1939—40	Good varieties	56,639	9,231	65,870
	Uba Canes	7,943	9,296	17,239
1940—41	Good varieties	63,225	13,905	77,130
	Uba Canes	5,212	8,863	14,075
1941—42	Good varieties	60,437	20,014	80,451
	Uba canes	1,614	5,651	7,265
1942—43	Good varieties	68,582	27,355	95,937
	Uba canes	186	1,607	1,793
1943—44	Good varieties	63,935	32,117	96,052
	Uba canes	Nil	41	41

ANNEXURE IV

Weight of Small Planters Canes Supplied to Solférino Weighbridge (Médine S.E.) since 1940 up to the Present (in Metric Tons)

1940—41 ...	Good varieties		3,059
	Uba canes		1,701
1941—42 ...	Good varieties		4,989
	Uba canes		1,290
1942—43 ...	Good varieties		4,945
	Uba canes		369
1943—44 ...	Good varieties		7,629
	Uba canes		86

THE MANUFACTURE OF LIME FOR USE IN THE SUGAR INDUSTRY AND FOR BUILDING PURPOSES.

R. D'AVICE

in collaboration with

S. STAUB and F. DUROCHER-YVON

Lime used in the manufacture of sugar for tempering juice or in building construction for plastering should be of the highest purity possible.

As the object of adding lime to sugar juices is to remove the maximum amount of impurities it is obvious that the lime should as far as possible bring no impurities to the juice. The fact that in raw sugar manufacture lime is the only chemical agent used for clarification and that the amount of lime used is small is another reason for enhancing the use of a pure product. Impure lime retards subsidation, helps in the formation of scale in the evaporators and increases the proportion of molasses. A few years ago serious difficulties were encountered at the clarification department in one of our sugar factories situated near the coast. By substituting the inferior lime used — which lime was produced by the factory with poor corals insufficiently burnt — with a product of better quality all the difficulties disappeared.

Lime is one of the best substance and by far the cheapest one available locally for wall lining. However, lime used in plastering must be of high purity, otherwise the good looking effect is not obtained and sooner or later (sometimes after a few months), stains appear on the surface, giving a decidedly unsanitary effect and the work has to be started again.

Lime used in Mauritius is always obtained from lime-kilns burning local corals. Limestone is heated at a temperature of 900-1000°C and the calcium carbonate is slowly decomposed into lime and carbon dioxide according to the equation :

$$Ca\ CO_3 = CaO + CO_2$$

The corals on the coast form the only source of Calcium Carbonate as no other deposit exists. For analytical purposes the term limestone is interpreted in its broadest sense to include all rocks composed largely or entirely of Calcium Carbonate. Pure Calcium Carbonate contains 56 o/o CaO. Our local corals contain between 49-53 o/o CaO i. e. between 87-94 o/o

$CaCO_3$, so that we are in the upper limit of purity. The impurities are:

1. Organic matter
2. Silica
3. Alumina & Ferric oxide (reported as mixed oxides)
4. Magnesium salts chiefly Carbonate (reported as MgO)
5. Sulphates
6. Alkalis
7. Chlorides

Corals employed at the lime stations are of two kinds :

(1) " Tête de Mort " (*Porites sp.*)

(2) " Platin " (*Turbinaria sp.*)

Samples of both species were taken and submitted to a complete analysis. It was thought that a purer limestone could be obtained by washing, and to that end both types of corals, after having been broken in pieces of about 3 inches, were placed in

1. Running water for one month
2. „ „ „ two months
3. Rain water in open air

and the effects of the weathering agents were determined analytically.

The figures indicate the superiority of " Tête de Mort " over " Platin " as a lime furnishing material, " Tête de Mort " contains about 2 o/o more CaO. Another advantage possessed by Tête de Mort is that it contains ten times less Magnesia, this substance being very troublesome in clarification of cane juice. According to Haloff & Schmidt, limestone used for preparing milk of lime should never contain more than 0.5 to 1 o/o of MgO.

The corals when submitted to water treatment lose a large part of their impurities. Thus the sulphates, alkalis and chlorides are more or less completely removed by the treatment and a purer calcium carbonate is obtained for burning at the station, the lime resulting being consequently free from noxious impurities. However the Magnesia does not seem to be removed by the treatment and as " Tête de Mort " is poor as far as this impurity is concerned it should be used in preference whenever possible.

If the lime kiln is near a river the corals can be submitted to the washing treatment prior to burning, if not the corals should be well ex-

TABLE I — ANALYTICAL RESULTS

Description	% Moisture	% Loss on Ignition	% CO_2	% SiO_2	% Fe & Al Mixed Oxides	% CaO	% MgO	% SO_4	% Alkalis	% Chlorine as NaCl
"Tête de Mort" (*Porites*) as picked.	0.14	45.34	41.00	1.34	0.32	52.48	0.26	1.17	2.00	0.98
"Tête de Mort" (*Porites*) washed in running water 1 month ...	0.13	44.60	41.82	1.08	0.32	52.62	0.23	0.98	1.64	traces
"Tête de Mort" (*Porites*) washed in running water 2 months ...	0.07	44.43	42.30	0.92	0.32	52.54	0.23	0.84	0.96	nil
"Tête de Mort" (*Porites*) washed by rain water in open air 2 months	0.12	44.24	41.14	—	0.28	52.79	0.23	0.70	—	0.06
"Platin" (*Turbinaria*) as picked	—	42.90	42.89	0.62	0.70	50.66	2.00	1.16	1.90	0.52
"Platin" (*Turbinaria*) washed in running water 1 month ...	—	41.80	41.90	—	0.42	49.98	2.08	0.97	—	0.05
"Platin" (*Turbinaria*) washed in running water 2 months ...	—	42.50	42.32	0.52	—	50.89	2.12	1.00	0.89	nil
"Platin" (*Turbinaria*) washed by rain water in open air 2 months	—	44.0	40.73	0.65	0.54	49.62	1.07	0.90	—	0.02

posed to rain water before burning. The amount of lime which could be produced by the above process is probably limited but our requirements, specially for plastering, is relatively small and the production of even a small amount of high grade lime would be highly welcomed by building constructors.

Analysis of various samples of Lime show insufficient calcination, that is a certain proportion of Calcium Carbonate remains unattacked. Two typical examples are given below :

	o/o CaO	o/o $CaCO_3$
Sample No. 1	56.8	14.8
Sample No. 2	60.8	8.9

Working at correct temperatures is stressed upon as a purer product will result.

Insufficient calcination is due to the use of wood such as acacia, (*Leucœna* sp.), bois d'oiseau (*Litsea* sp), jamblon (*Eugenia* sp.), eucalyptus which have a low calorific value of about 3.500 per lb. Filao wood (*Casuarina equisetifolia*), for example, with a calorific value of 7.000 gives much better results.

When calcination takes place at a too high temperature, lime slakes with difficulty but with our type of limekiln such an event is not to be feared even when using wood of best quality.

LE CYCLONE DU 8-9 FÉVRIER 1944

M. V. M. HERCHENRODER, B. Sc.
Assistant Directeur de l'Observatoire

Pour faire l'historique complet de ce cyclone, qui fit son apparition pour la première fois sur l'océan entre le 4 et le 5 de ce mois, il nous faut remonter au 30 janvier, date à laquelle prit naissance un précédent cyclone qui fut, pour ainsi dire, parent de celui qui nous occupe.

Ce premier cyclone, formé au septième parallèle Sud, traversa l'océan sur une trajectoire bien ouverte (voir trajectoire sur la carte, fig. 1) qui l'amena au 4 février, à un peu moins de 200 milles du Nord-Est de Maurice. A partir de cette date, la perturbation, qui avait commencé déjà à s'affaiblir notablement en intensité, s'évanouit, laissant seulement comme trace de son passage, un tout petit noyau de basse pression, situé entre Maurice et Rodrigues. A ce moment même, cependant, un autre centre cyclonique, (celui qui passa si près de nous) se formait rapidement, vers le quinzième parallèle (voir fig. 1). L'énergie de ce dernier se développait, semble-t-il, aux dépens de l'énergie du premier. La trajectoire du nouveau cyclone à peine formé, se recourbait immédiatement de Sud-Sud-Ouest vers le Sud, pendant que le centre se déplaçait très lentement (3 à 3½ milles par heure).

Le 7 février, au matin, le cyclone n'avait traversé qu'environ 150 milles d'océan de sa position du 5 ; mais sa direction maintenant s'orientait vers le Sud-Est et sa vitesse s'accroissait à 7 milles par heure. Cette vitesse était extraordinairement faible pour un cyclone voyageant sur la deuxième branche de sa trajectoire ; bien que cette lenteur fut toutefois en rapport avec l'intensité, aussi très faible, du météore. Longtemps le centre se fit attendre à Maurice : le vent à l'Observatoire se maintint entre l'Est et l'Est ¼ Sud du 7 février 18 heures au 8 février 21 heures, soit au total pendant 27 heures ; le baromètre baissait lentement pendant tout ce temps. Enfin vers 22 heures, le 8, le vent à l'Observatoire des Pamplemousses commença à tourner, d'abord graduellement vers l'Est-Sud-Est et puis plus rapidement au Sud-Est à 23 heures, pour gagner tout à coup le Sud-Ouest à 1 heure 50 minutes du matin. La force du vent qui avait atteint 37 milles par heure en moyenne et 52 milles par heure dans les rafales, tomba soudainement à 16 milles par heure et un brouillard épais apparut : l'Observatoire traversait une petite partie du calme central, vers sa périphérie (voir figure 3).

Le centre lui-même, de 18 milles de diamètre, passait à 7½ milles environ de l'Observatoire. Il appert maintenant, d'après toutes les observations faites dans l'île, que la trajectoire s'incurva encore, mais légèrement

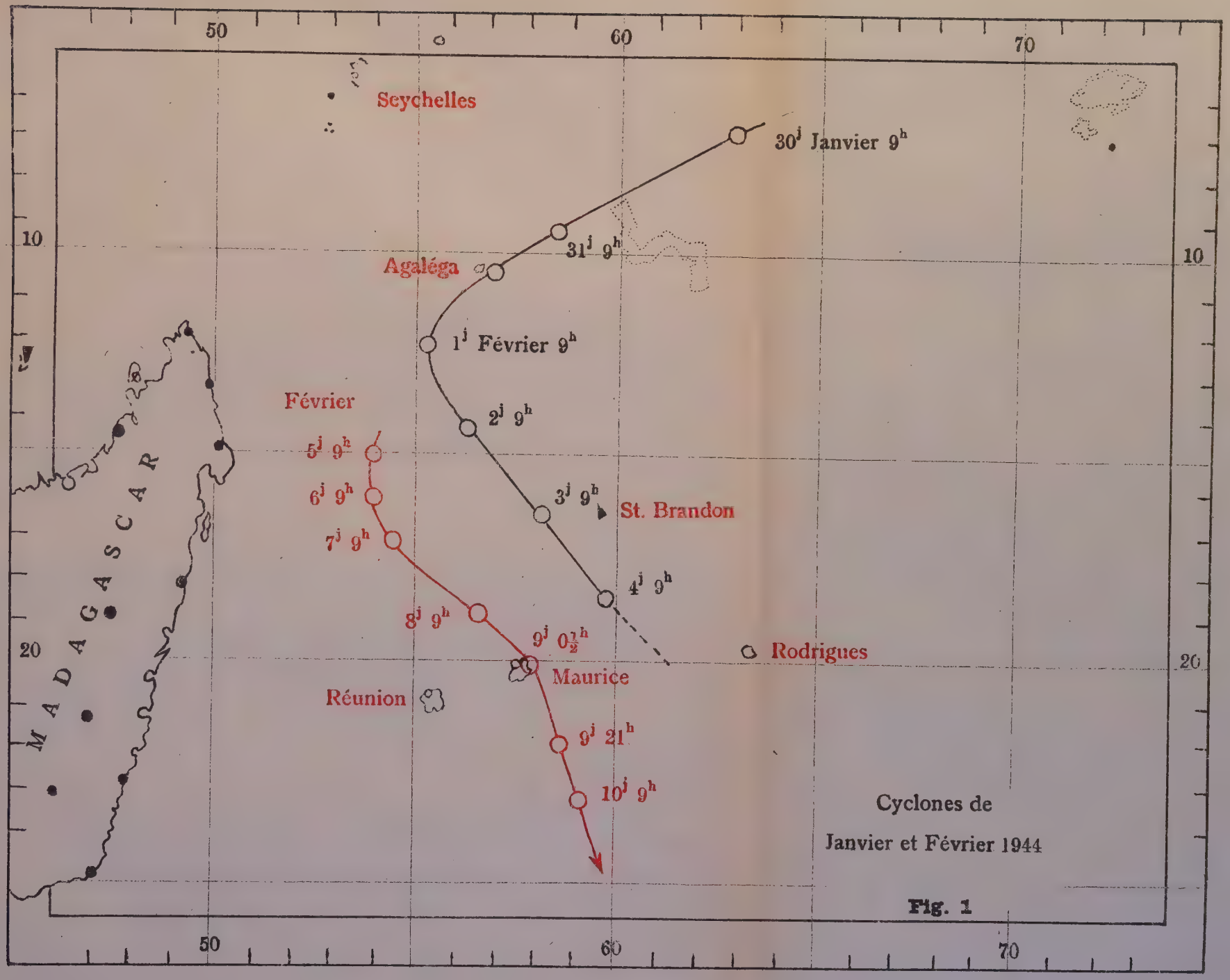
50
0
60
70
10
20
Seychelles
Agaléga
30j Janvier 9h
31j 9h
1j Février 9h
2j 9h
3j 9h
St. Brandon
4j 9h
Février
5j 9h
6j 9h
7j 9h
8j 9h
9j 0½h
Maurice
Réunion
Rodrigues
9j 21h
10j 9h
MADAGASCAR
Cyclones de
Janvier et Février 1944

Fig. 1

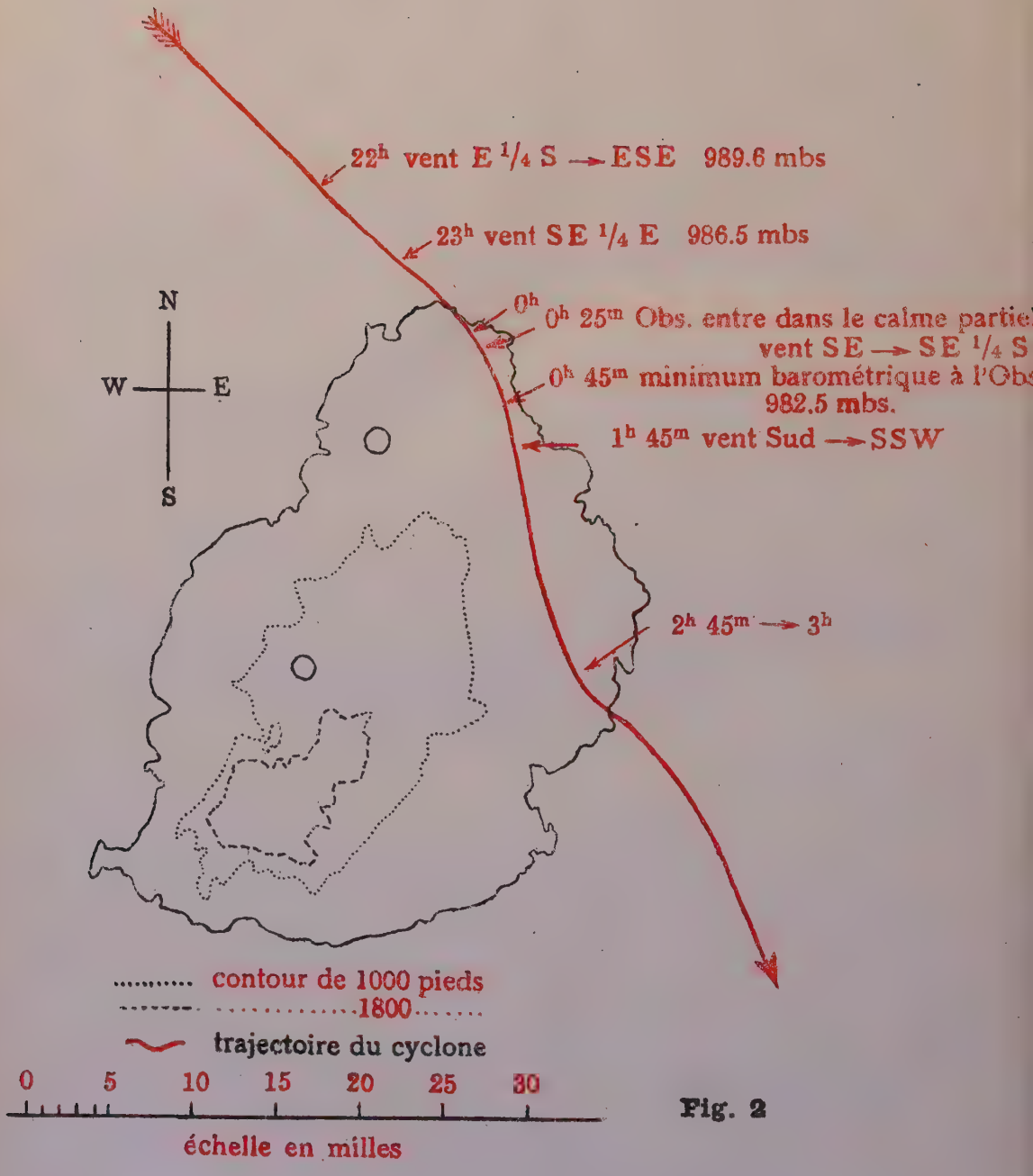
22h vent E 1/4 S → ESE 989.6 mbs
23h vent SE 1/4 E 986.5 mbs
0h
0h 25m Obs. entre dans le calme partie
vent SE → SE 1/4 S
0h 45m minimum barométrique à l'Obs
982.5 mbs.
1h 45m vent Sud → SSW
2h 45m → 3h
N
W
E
S
..... contour de 1000 pieds
-------- .....1800.....
trajectoire du cyclone
0 5 10 15 20 25 30
échelle en milles

Fig. 2

cette fois, au cours de ce passage du centre à proximité de l'île (voir figure 2) : la marche du cyclone dévia vers le Sud-Sud-Est, ce qui explique aussi la rapidité du changement dans la direction du vent entre minuit et deux heures du matin. La violence du météore, bien que faible, se fit néanmoins sentir encore jusqu'à l'après-midi du même jour, grâce à l'extraordinaire lenteur de son éloignement. Le baromètre ne remonta tout à fait que le lendemain.

Le lecteur que cette étude intéresse particulièrement trouvera dans les lignes qui suivent quelques détails supplémentaires sur la structure du cyclone. L'Observatoire des Pamplemousses éprouva un calme partiel dont la durée fut de 1 h 30 m ; comme la traversée de ce calme se fit à 7 milles à l'heure, on déduit que le passage à travers la zone centrale aura été de 10 milles environ. Le minimum barométrique observé à cette station fut 982.5 millibars (736.9 mms). La baisse barométrique de 22 h à 0 h. 45 m (instant du minimum de pression) fut de 6.7 millibars, ce qui donne une chute moyenne horaire de 2.4 millibars. On calcule ainsi que le gradient de pression, non loin du calme central, aura été de $\frac{2.4}{7}$ soit 0.35 mb. par mille.* Par ailleurs, la pression lue à 23 heures à Vacoas était de 5 millibars au dessus de la pression observée à la même heure à Pamplemousses ; la distance entre les deux stations étant de 14¼ milles dans la direction passant à côté du centre, on a donc bien 0.35 mb/mille comme gradient de pression aux alentours du centre. D'autres observations (e.g. l'instant du début du calme) firent encore voir que le calme partiel commença avec l'isobare de 983.0 mbs (737.3 mms) ; en rapprochant ce fait des données précédentes, on arrive à un calcul approximatif du diamètre du calme central (voir fig. 3). Ce diamètre aura été de 18 milles environ.

Il est évident qu'une représentation schématique de ce genre n'est faite que pour donner une idée, assez grossière, de la structure du météore. En réalité, le champ de pression, presque toujours déformé pendant le passage au voisinage des terres, ne possède pas toute la symétrie désirable pour le calcul, surtout lorsque l'intensité du cyclone est plutôt faible, comme dans le cas considéré.

Le minimum de pression au centre du cyclone ayant été voisin de 982 millibars, sa profondeur aura donc été de 29 millibars environ ; comparé au cyclone de mars 1931 dont la profondeur fut de 43 millibars et celui d'avril 1892 dont la profondeur fut de 69 millibars, le présent cyclone fut en vérité très modéré ; il serait comparable en intensité au cyclone d'avril 1932, dont le centre passa presque sur l'Observatoire. La profondeur de ce dernier fut aussi de 29.5 millibars et la plus forte vitesse de

* Ce gradient n'est pas tout à fait le gradient suivant le rayon isobarique ; ce dernier serait un peu plus fort : soit 0.45 ou 0.50 mb/mille, d'après le minimum de pression (986 mbs) observé à Vacoas. Une incertitude existe ici dans la réduction au niveau de la mer de la pression à 425 mètres.

vent fut 56 milles/heure à Pamplemousses et 68 milles/heure à Vacoas.

On sait que la force du vent dans un cyclone est en relation assez étroite avec le gradient de pression ; on ne peut donc pas s'attendre à avoir de relation bien précise entre la force du vent et la *seule* profondeur du cyclone. La profondeur du centre est cependant un sérieux indice de violence, ainsi que l'expérience laisse voir. Un examen de 9 centres cycloniques qui, depuis 1892, passèrent sur l'île, permet de reconnaître une relation *empirique* approximative dans la formule suivante : $\mathbf{v} = 7 + 1.30\,\mathbf{d}$ dans laquelle **v** serait la vitesse soutenue du vent aux abords du centre en milles par heure et **d** la profondeur du centre cyclonique en millibars. La vitesse de 7 milles par heure qu'on obtient lorsque la profondeur est nulle, correspond bien au vent ordinaire des isobares à peu près rectilignes.

La vitesse *soutenue* ou " stable "* du vent dans les cyclones est inférieure à la vitesse maximum qui souffle par intermittence *en rafales* ; cette dernière est en rapport avec la vitesse soutenue, mais ce rapport ne demeure pas constant lorsqu'on passe de la périphérie vers le centre du cyclone ; il n'est d'ailleurs pas tout à fait le même dans différents secteurs d'un seul cyclone, par exemple, à l'avant et à l'arrière. En temps normal, le rapport de vitesse entre le vent maximum intermittent et le vent " moyen " est à peu près 1.5, à 100 pieds du sol.

A l'avant d'un cyclone, ce rapport peut parfois dépasser 1.7 à la périphérie, lorsque le vent stable ne souffle qu'à 20 milles par heure ; mais cette valeur ira en diminuant au fur et à mesure que la violence du vent devient plus grande, c'est à dire au fur et à mesure que l'on s'approche du centre du cyclone. On a pu mesurer, dans un cas particulier, ce rapport entre la vitesse des rafales et celle du vent " stable " celui-ci soufflant entre 20 et 80 milles par heure à l'avant d'un cyclone très intense, passant au *nord* du poste d'observation : dans ce cas le rapport (**r**) de la vitesse des *rafales* à celle (**v**) du vent soutenue est assez bien représenté par la fonction : $(\mathbf{r} - 1) = 0.75\,\mathbf{e}^{-.02\,(v-20)}$.

A 80 milles par heure, la vitesse des rafales n'est donc plus que 25% et même moins au dessus du vent *stable*. Dans le secteur arrière d'un cyclone†, le rapport des deux vitesses correspondrait à une fonction analogue, mais dont les constantes seraient différentes. On sait d'ailleurs que l'angle d'inclinaison du vent sur les isobares est aussi très différent de l'avant à l'arrière du cyclone.

* On dit encore " vitesse moyenne " ; mais ce terme prête à la confusion et ne devrait pas être employé.

† Et aussi dans les cyclones d'intensités différentes.

Le passage du cyclone à l'Observatoire

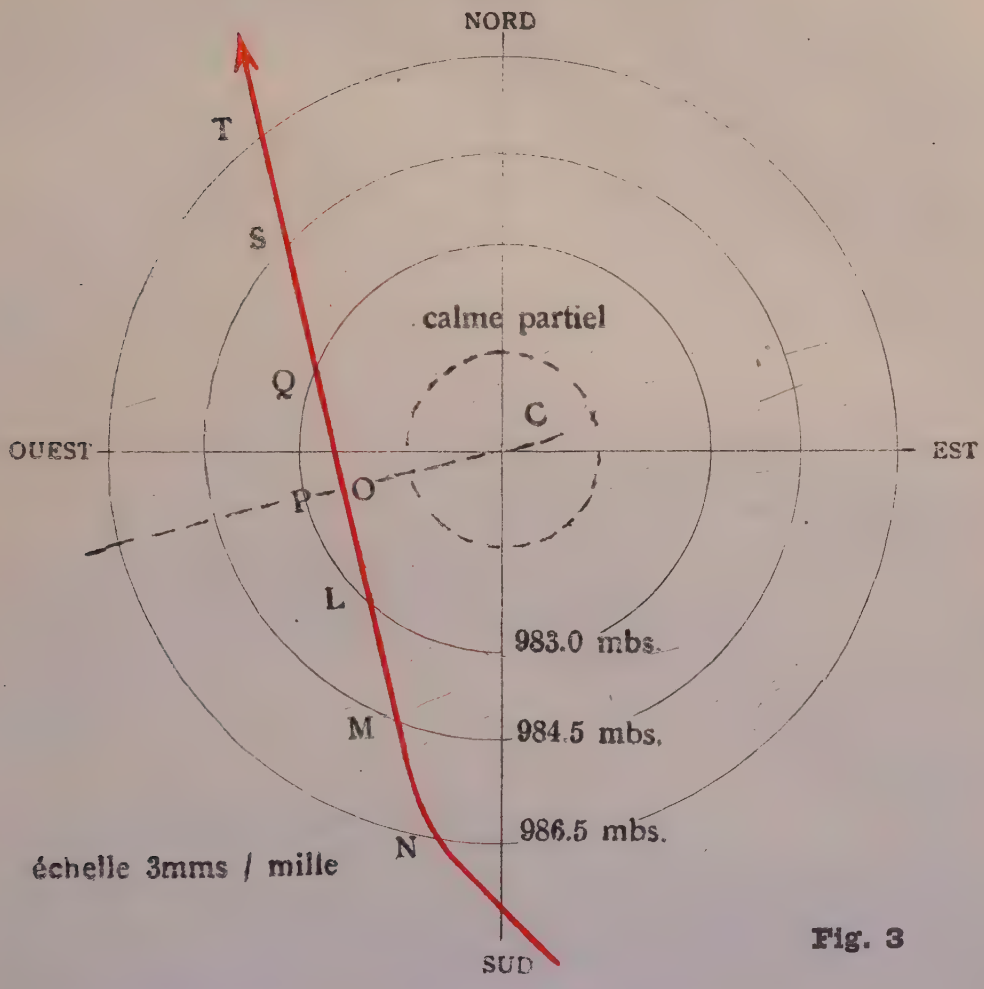

Fig. 3

CO=distance minimum $7\frac{1}{2}$ milles du centre à $0^h\ 35^m$ le 9.
CQ=rayon de la zone de calme (isobare 983.0)=9 milles.
LQ=traversée dans la zone de calme partiel=10 milles.
CS=rayon de l'isobare 986.4=13 milles.
TC=rayon de l'isobare 986.5=17 milles.
LM=$4\frac{1}{3}$ milles.
~~~ =traversée de l'Observatoire dans le cyclone.
~~~

Tracé des lectures barométriques faites à l'Observatoire des Pamplemousses.

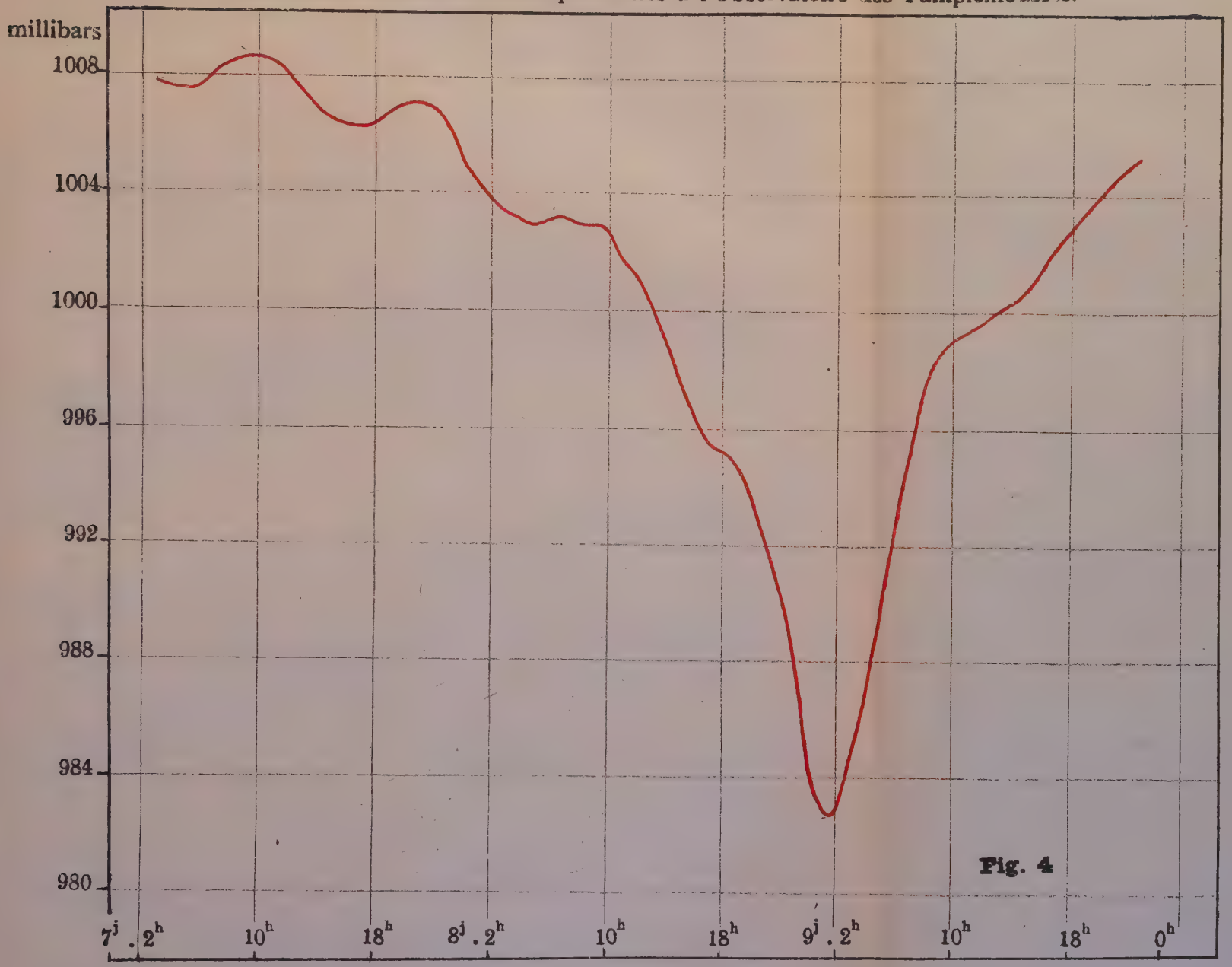

Fig. 4

CHAMBRE D'AGRICULTURE

Meeting of the Chamber of Agriculture held on the 16th. February 1944.

Present : H. E. the Governor,
Dr. Clyde, Food Adviser to the Colonial Office,
Hon. Philippe Raffray, C.B.E., K.C., President of the Chamber of Agriculture,
Mr. P.G.A. Anthony, 1st. Vice-President of the Chamber,
Hon. Tristan Mallac, 2nd. Vice-President of the Chamber,
Hon. G.E. Bodkin, C.B.E., Director of Agriculture,
Mr. W.R. Owens, Director of the Agricultural Bank,
Captain Paul Hein,
Mr. N. Craig, Food Production Officer,
and a great number of Members of the Chamber of Agriculture, and numerous Managers of Estates with Mill and Estates without mill.

The President, Hon. Philippe Raffray, says that it is an honour for the Chamber to have present at this meeting H. E. the Governor and Dr. Clyde. This latter is Food Adviser to the Colonial Office ; and it is a privilege for the Colony to have him amongst us for some time, as the country will surely benefit from his advice on our problems of food importation and food production. The President feels sure that, when our problems and difficulties will have been put to the Secretary of State for the Colonies by Dr. Clyde, who will have seen with his own eyes and heard with his own ears, our situation will certainly improve. The President is happy to introduce Dr. Clyde to the Assembly, who will listen to him with great advantage.

Dr. Clyde then addressed the meeting. He said that he had learnt that he had been advertised as " the Economic Adviser to the Secretary of State ", and he wished to apologise for not being such an important officer. He had come to Mauritius, on the instructions of the Secretary of State, to learn as much as he could, and to obtain first-hand knowledge of our difficulties. He had already been studying with our experts, and he hoped that he would be able to help Mauritius agriculture and food problem, not only after leaving the Colony, but also while he would be staying here.

He was going to inform the meeting of the stage his education in our problems had reached. He was most conscious of the difficulties met with by us, and he was going to think aloud about the situation as he saw it.

(a) The first difficult problem was that of *labour* : 27% of the area of estates was now under foodstuff, and, although the number of labourers required would vary from estate to estate, it was evident that the cultivation of maize did necessitate more labour than cane growing : he had been informed that to obtain 2 crops of maize on an acre of land 146 men days would be wanted, while only 64 men days would be sufficient for the cultivation of an acre of cane.

(b) The second difficulty lay in our not having any previous experience of the cultivation of foodstuffs on an extensive scale, so that the effects of climate, soil and other factors were still unknown. He knew it had not been possible to have a chemical survey of the soil made before starting the plantation of foodcrops. He had seen the effects of the recent big storm ; and had ascertained that the planting season was greatly limited in duration. He knew also the difficulties experienced in procuring the right seeds.

(3) The third difficulty was due to the *lack of heavy tractors*. He knew it was not the fault of either the Government or the Controller of Supplies. He had been able to see for himself tractors in very bad condition ; and he was aware of the difficulties experienced with wheel tractors. He had seen all those things for himself ; and when he had been told by one manager : " get us the necessary machinery and there will be a great increase of the production ", he knew there was a great deal of truth in that statement.

(4) The fourth handicap was the *lack of transport*. The Controller of Supplies was trying very hard to get the transport required to carry from the fields the products of the growers, but it sometimes happens that when he obtains the necessary lorries, these are of no avail because the growers have had no labour to pick out the sweet potatoes from the ground.

Dr Clyde then stated that he had visited a great number of Estates, and had conversed with numerous managers of very varied temperaments, — he had met from the optimist to the disheartened and pennyless, — and had listened attentively to them all. He had seen many fields, some good ones and some bad ones. It had also been his lot to reach the Colony just at the time of the labour unrest : he had noticed that, even where there were no strikes, labourers used to leave the fields very early. He was also aware of the evil effects of rhum and other drinks on the workers.

What had struck him most with regard to labourers was what he would term : their lassitude. Many labourers are undoubtedly victims of malnutrition : they are undersized ; many show evidence of large spleen (100% of them in some places) and of blood parasites (80% in too many regions).

One could not resist the conclusion that labourers were affected by lassitude ; and this involved an Imperial responsibility. Now, protein food was difficult to get. The problem was not due solely to the war: often the people do not make a rational use of what they can have. At present we had to realise that the food obtainable was limited, and so was the availing shipping ; and, besides, imports of food from abroad meant that some other country had had to be deprived of part of its requirements. But we were not for all that to give up hope of a solution. With the increased knowledge he had of Mauritius, Dr. Clyde would do his best to get pulses regularly to the Island.

He desired, nevertheless that all should bear in mind what is said in § iv (4) of the Hot Springs Conference Recommendations :

" Wide experience has shown that direct measures to supplement inadequate diets have been economical and fruitful."

Dr Clyde was not forgetting what Estates had done to improve the diet of the people. He knew that some planters had lost money, through diseases of the plants, pilfering, etc... He had been told : " The United Nations need more sugar ; let us produce sugar, and let us be supplied from abroad with the food which we cannot grow properly." The same kind of demand has been made to him in Ceylon with regard to rubber. But the answer to such a suggestion was simple : Mauritius could not be left wholly dependent upon shipping ; even in the recent past the Colony had been on the verge of tragedy on account of the lack of supplies from abroad. One had to realise the difficulty of the shipping problem : there are countries that are starving and the Imperial Government had to guard against the risk of epidemics that would be dreadful on badly nourished populations. Therefore it would not be fair to leave Mauritius to depend solely on importations, so long as the shipping problem was liable to be affected by unforseen complications.

Dr. Clyde was glad to admit that the result of the last crop amounted to a great achievement ; but we had to keep in mind that His Majesty's Government at Home had taken the risk of a reduction in the sugar and rubber output, adhering to that other recommendation of the Hot Springs Conference that " Production of nutritive food was an obligation for every Country. "

Dr. Clyde concluded by saying that the Food Committee was sensible to all those facts ; and we should not give up hope, for the Committee was tackling the problem with ability, but they needed the support of all.

H. E. The Governor then rose, and said that he had not brought Dr. Clyde to the Chamber with a view to exercise any pressure on the latter's decisions, but he would like to ask Dr Clyde to help us out of our difficul-

ties. In saying this, he did not wish to overburden the Navy; however, he was hopeful that the findings of Dr Clyde would lead him to reinforce the arguments the Government of the Colony had put on paper for the enlightenment of the Home Government. Then H.E. said that he was fearing that his presence might be in the way of members who would wish to discuss certain points with Dr Clyde, and not wishing to be a hindrance to a full discussion of our problems, he would now leave the meeting.

His Excellency left, being accompanied to the door by the President.

Returning to the Chair, the President thanked Dr Clyde for his "exposé", and invited the members of the meeting to ask from Dr Clyde any detailed explanations they could wish for.

Mr. L. de Chazal insisted on the great importance of obtaining tractors for Mauritius. He said that the Food Production Scheme had called suddenly for more labour than we could have, and that the resulting situation was bad already and would probably get worse. He suggested that Dr Clyde, who was conscious of this situation, should try and do something right away to have tractors shipped to Mauritius in the shortest delay.

Mr. Claude Noel then spoke about the difficulties of maize cultivation and field cleaning.

Hon. Pierre Hugnin drew attention to the fact that, whereas there existed in the Colony a shortage of labour, there were people of the working class spending their days in idleness and doing nothing without any excuse; Hon. Hugnin suggested that means should be provided to enable our Police to prevent such blameworthy behaviour: the effort in the present emergency should come from all, and every one should be compelled to do one's duty.

Dr. Clyde said he agreed that the effort to cope with the situation should come from all: during his stay in Mauritius he was taking every opportunity of addressing the different sections of the community. He wanted it also to be clear that no words of his "exposé" had been meant as a criticism of the proprietors and planters.

Captain d'Hotman talked about the depredations caused in the fields by people who most often escaped the adequate punishment they deserved. He said that the laws should be strengthened, because in drastic times drastic measures should be provided to ensure that more food were obtainable.

Dr. Clyde required whether Captain d'Hotman was advocating more severe penalties.

Captain d'Hotman: "Yes, and also a better police."

Mr. P.G.A. Anthony then said that he thought he would meet the wish of the assembly in expressing to Dr Clyde the thanks of all present for having come to the Chamber and explain our situation as he saw it. From Dr Clyde's exposé, it was certain that if he had missed anything, this was not much; and the community would be comforted to know that our case will soon be put to the Home Government by him, and this hope would cheer us up in our difficulties. Before sitting down, Mr Anthony wished to avail himself of the occasion of being standing to welcome at the Chamber Captain Paul Hein, who, he understood, was only "de passage" in the Colony on a military mission. Captain Paul Hein could be assured that all his friends had been delighted to see him in such splendid health; and all wished him a good voyage back to his regiment, and much good luck.

Captain Paul Hein thanked Mr Anthony for the kinds words for which he was very grateful.

Then Dr. Clyde thanked the President of the Chamber for having convened this meeting, and added that if sometimes he appeared to be the devil's advocate, it was with the view of coming to know the facts. One promise he could make: he would fight for Mauritius.

The meeting was then closed.

SOCIÉTÉ DES CHIMISTES ET DES TECHNICIENS DES INDUSTRIES AGRICOLES DE MAURICE

Compte rendu de l'Assemblée générale annuelle du Lundi 31 Janvier 1944, à l'Institut.

Présidence de M. Octave d'Hotman de Villiers, président. Membres présents : MM. Louis Baissac, André Baissac, Serge Dupont de Rivalz St. Antoine, Paul Giraud, Adrien Hardy, Edgar Julienne, Eugène Lagesse, Alfred Leclézio, André Martin, Guy Masson, Claude Noël, Vivian Olivier, George R. Park, Pierre de Sornay, Henry Vaudin, Jean Vinson, Adrien Wiehe et Octave Wiehe.

S'étaient fait représenter : MM. P. Gaston Antelme, Léon Bourgault du Coudray, Alex Bax, Roger Bax, Marc de Chazal, Maurice North Coombes, Joseph Coutanceau, Lucien de Chazal, Léon de Froberville, Robert Lagesse, Raoul Langlois, Roland Mackie, Hector Paturau, Loïs Robert, Yves du Trévou, Antoine Vinson.

Le procès-verbal de la dernière assemblée générale est lu et adopté.

Le Président donne lecture du rapport annuel suivant :

Mes chers collègues,

Avant de vous récapituler les activités de la Société pendant l'année écoulée sous ma présidence, je vous prierai de vous associer à moi dans une pensée émue à la mémoire de notre collègue Roger Leclézio, brusquement enlevé en pleine jeunesse à l'affection des siens, ainsi qu'à la mémoire de son père durement éprouvé, Monsieur Louis Leclézio, planteur de si grande renommée, ami de la Société, disparu quelques semaines à peine après Roger. Notre Association ressent d'autant plus vivement cette double perte qui a affecté profondément toute la communauté agricole, que nous nous souvenons que c'est à Alma où grâce au génie progressif de Sir Henry Leclézio, le premier contrôle chimique de sucrerie de la Colonie fut institué par le chimiste français Biard, de même que c'est à Alma où est née notre première Association de Chimistes. Notre organe officiel, La Revue Agricole, a rendu de justes hommages à la mémoire des disparus, mémoire que nous saluons de nouveau aujourd'hui, attristés et recueillis.

Ce n'est que Vendredi après-midi que j'ai appris une autre bien triste nouvelle : le décès de Mr. W. P. Ebbels, Directeur de l'Anglo-Ceylon à Londres, membre de la Société des Chimistes depuis sa fondation.

Mr. Ebbels, lui aussi planteur renommé, fut pendant de longues années l'administrateur très accueillant de Beau-Séjour, Mapou, qu'il laissait en 1922, en quittant la colonie, dans un état de progrès et de mise au point remarquables.

Mr. Ebbels, technicien, avait tout de suite reconnu la valeur du contrôle chimique de sucrerie et croyait particulièrement en l'importance des travaux de recherches qu'il encourageait en prêchant d'exemple. La Société lui doit des communications fort intéressantes sur des questions étudiées par lui à Beau-Séjour. Il fut l'initiateur du double turbinage à Maurice et l'inventeur d'un dispositif pour le réglage automatique d'une quantité prédéterminée d'eau pour le finissage du sucre blanc.

Ses travaux expérimentaux en agriculture furent également remarqués. L'Industrie sucrière lui est redevable d'une part substantielle du progrès rapide qu'elle réalisait peu après la fondation de notre Société.

Je vous demanderai de vous joindre encore à moi, mes chers collègues, dans une autre minute de recueillement à la mémoire de Mr. Ebbels dont nous déplorons la perte aussi vivement....

Messieurs,

Nous avons eu, l'année dernière, treize réunions du Comité, le plus souvent fort longues, ainsi que quatre réunions générales dont l'une, fait unique dans les annales de la Société, je voudrais le rappeler, a eu lieu au siège de la Chambre d'Agriculture grâce à la bienveillance de M. le Président et de MM. les membres du Bureau de la Chambre qui nous donnaient une preuve d'estime dont nous nous souviendrons avec reconnaissance. A cette bien belle réunion à laquelle M. le Président et MM. les membres du Bureau et du Conseil de la Chambre, M. le Président et MM. les membres du Comité du "Sugar Industry Reserve Fund" et d'autres invités de marque nous faisaient l'honneur d'assister, je voudrais encore le rappeler, notre ami Joseph Coutanceau nous lisait une magistrale conférence sur l'économie de la vapeur dans nos sucreries. La semaine suivante, notre collègue, à l'Institut, nous initiait à la mathématique même de ses conceptions sur l'appareil à évaporer, les circulateurs de son invention pour en augmenter la capacité et le prélèvement des vapeurs pour l'échauffage du jus : trois questions prépondérantes quant à l'économie de la vapeur et l'économie du matériel.

Depuis fort longtemps la Société n'avait entendu plus remarquables communications. Je suis heureux de vous apprendre que notre ami réunira bientôt ses travaux si parfaitement mis au point dans un livre riche d'utilité pour les techniciens de notre principale industrie.

2. Le Président du Comité Central des Administrateurs nous ayant suggéré de préconiser une méthode pour la détermination de l'humidité du maïs, nous avons prié notre ami René Lincoln d'étudier la question. Notre collègue, s'étant entouré de collaborateurs actifs et compétents, nous a

présenté un rapport préconisant la méthode Brown et Duvel, élégante et précise. Avec l'aide pécuniaire du " Sugar Industry Reserve Fund, " nous faisions distribuer aux propriétés sucrières et à d'autres planteurs de maïs, au nom du Comité Central, un dessin de construction de l'appareil Brown et Duvel accompagné d'une copie du rapport dont on aura pu apprécier la substance et la forme. Cette tentative d'unification d'une méthode d'analyse a rencontré tout le succès désirable. Combien il est souhaitable que l'unification des méthodes de contrôle chimique, (que nous n'avons pas eu le temps d'étudier, l'année dernière,) rencontre un succès aussi unanime !

3. A la suite d'une conversation que M. Julien de Spéville, M. Louis Baissac et moi-même eûmes avec le Bureau de la Chambre d'Agriculture, nous avons nommé un Comité, sous la présidence de M. P. de Sornay, chargé de rapporter sur la fertilisation des cultures vivrières. Ce Comité ayant adopté le travail que je lui présentais — travail fait avec l'aide de René Lincoln — un rapport fut remis à nos dirigeants. A ce propos, je rappellerai que l'action rapide prise par nous a été appréciée par le Bureau de la Chambre qui, lui même, prenait auprès du Gouvernement une action fructueuse quant à nos importations d'engrais chimiques si nécessaires à nos sols latérisés dépourvus de réserve d'éléments minéraux nutritifs.

Cependant, une assertion de l'I.S.J. d'Août 1943 que m'a signalée notre collègue Antoine Vinson, de même que certaines assertions du Capitaine Whittall contenues dans une brochure distribuée aux planteurs tout récemment — assertions qui pourraient donner lieu à des interprétations nuisibles — devront, à mon avis, retenir de nouveau l'attention de la Société. En effet je crois, qu'il est du devoir de notre Association non seulement de toujours veiller à ce que les acquisitions les plus sûres de la science ne soient pas le moindrement discréditées, mais encore que la valeur économique de ces acquisitions d'un caractère permanent soit bien mise en relief aux yeux de nos planteurs.

4. Un autre Comité, également sous la présidence de M. de Sornay, a étudié les méthodes de culture des plantes vivrières d'une façon générale. Au reste, à ce Comité s'est finalement joint le Comité ci-dessus mentionné. M. de Sornay, en étroite et constante collaboration avec les membres de son Comité, nous a encore donné la pleine mesure de sa compétence et de son activité indéfectible en faisant imprimer, au nom de la Société, une brochure traitant exclusivement de la culture du maïs, brochure qui a été distribuée à plus de 100 planteurs de cette graminée que nous aurons à cultiver pendant fort longtemps encore, sinon pour toujours.

5. Les moyens industriels de dessécher la récolte de maïs aux taux d'humidités économiques, ont aussi retenu notre attention.

Pour cette étude, nous avons nommé un quatrième Comité dont M. G. Corbett, invité, acceptait gracieusement la présidence.

M. Corbett, qui a l'experience de la construction et de l'utilisation des " barns ", a entrepris des essais intéressants à la Station Expérimen-

tale pour la culture du tabac, à Richelieu, en collaboration avec notre ami Antoine Bérenger. M. Corbett nous a soumis un rapport préliminaire plein d'utiles enseignements. Je lui réitère ici nos meilleurs remercîments pour l'assistance cordiale qu'il nous a donnée.

Ce problème de la dessication de la récolte de maïs a été résolu au moyen du sécheur Hess ou au moyen du " barn " qui a été avantageusement modifié, notamment à Savinia. Je voudrais signaler l'installation compacte de notre ami Park qui, avec un sécheur Hess perfectionné et un élévateur à courroie pour le grain, obtient un rendement maximum pour un minimum de main-d'œuvre ; résultats fort précieux comme vous le pensez.

Bérenger me laisse savoir que des essais de dessication des grains de maïs seront entrepris dans quelque temps avec un " four Tunnel. " Je puis donc présager que le Comité mènera ses travaux à bonne fin dans l'intérêt des planteurs.

6. J'arrive maintenant, messieurs, au projet de loi relatif à l'enregistrement des chimistes agricoles, auquel, en pleine coupe, votre Comité de Direction a dû consacrer trois longues séances pour m'aider dans la tâche de maintenir les prérogatives de la Société.

Grâce à l'intervention de l'Honorable M. Philippe Raffray qui donnait à notre Association une autre preuve d'estime des plus encourageantes, nous avons pu faire connaître nos vues aux autorités, utilement je l'espère. Je crois que nous avons lieu d'être satisfaits. Le progrès dans les industries agricoles a dépendu et dépendra des progrès de la chimie analytique et de la valeur même des analystes. A mon avis il faudrait donc faire en sorte d'avoir de bons chimistes-analystes professionnels travaillant dans des laboratoires officiellement reconnus dans la Colonie afin que les intérêts de tout le monde soient protégés autant qu'il sera possible de le prévoir.

Il serait trop long de vous développer aujourd'hui ce sujet important qui nécessitera une étude approfondie. Je rappelle que c'est la Société des Chimistes qui, en 1915, prenait l'initiative quant à loi pour l'enregistrement des chimistes.

7. J'ai une autre bonne nouvelle à vous annoncer :

Le Comité du "Sugar Industry Reserve Fund" nous a accordé un subside annuel de mille roupies sur la demande de notre influent secrétaire M. Louis Baissac. Je suis certain que vous vous joindrez à moi pour prier M. Baissac, aux services gracieux duquel notre Association doit tant déjà, d'agréer nos sincères remerciements et de croire à notre vive reconnaissance, sentiments que j'ai exprimés à M. le Président et à M.M. les membres du Comité du Reserve Fund.

Les preuves de considération n'auront donc pas manqué à notre Société durant l'année écoulée. Nous pouvons en être fiers.

Le subside du Reserve Fund qui est, de plus, une preuve définitive de l'importance de notre groupement pour l'industrie sucrière, nous permettra de faire œuvre plus utile encore à l'avenir. A ce propos, je vous informe que votre Comité de Direction a décidé de s'assurer la collaboration active de notre collègue Jean Vinson à titre de secrétaire-adjoint permanent.

Comme vous le savez, nous sommes affiliés à l'Institut dont notre collègue est le distingué bibliothécaire et conservateur du Museum Desjardins, de sorte que la garde de nos archives et celle de la bibliothèque particulière que nous pourrons reconstituer progressivement ne sauraient être remise entre meilleures mains. J'en présage une reprise fructueuse d'activité administrative et scientifique de la Société au plus grand profit du progrès, dans les domaines de notre ressort.

8. Notre Association s'est encore augmentée de sept nouveaux membres. Elle compte aujourd'hui 119 membres dont 10 résidant à l'étranger.

9. Notre organe officiel, La Revue Agricole, grâce aux remarquables qualités affirmées de notre collègue Octave Wiehe, Rédacteur en Chef, et à son Comité de Direction dont notre ami Olivier est l'actif secrétaire, continue à diffuser avec autant d'attrait que d'autorité les acquisitions de la science et de l'expérience agricoles et industrielles, acquisitions faites dans la Colonie ou à l'étranger.

10. Enfin, mes chers collègues, ce que la majorité des membres désirait depuis plusieurs années est aujourd'hui fait accompli. Notre groupement, sous la nouvelle dénomination : " Société des Chimistes et des Techniciens des Industries Agricoles de Maurice ", s'engage dès à présent, du fait des modifications apportées à nos statuts dans un esprit conciliatoire, amical et, en somme, progressif, vers un avenir que je prévois très riche en bonne renommée.

11. En résumé, la Société des Chimistes n'a pas chômé en 1943. Un grand nombre de ses membres ont fait du bon, du grand travail au sein des comités. Nous avons, au total, assez largement réalisé le but même de notre association : servir.

12. Laissez-moi, Messieurs, en terminant ce long rapport, remercier sincèrement, mes collègues du Comité de Direction de la confiance qu'il m'ont témoignée et de l'assistance cordiale qu'ils m'ont si patiemment prodiguée ; et notre secrétaire, M. Louis Baissac, dont le dévouement expérimenté, inlassablement amical, fut aussi précieux pour le Président que pour la Société. *(vifs appl.)*

Le Trésorier présente l'état de situation de la Société arrêté au 31 décembre 1943, qui est adopté à l'unanimité.

Sur la recommandation du Comité, le Président propose que M. Paul Kœnig, qui fut un des membres les plus actifs de la Société depuis sa fondation, soit élu membre honoraire de la Société. Cette proposition est adoptée par acclamation.

Le Président procède ensuite au dépouillement des bulletins de vote, au nombre de 49, pour l'élection du comité de direction pour 1944. Sont élus :

MM.	Alfred Leclézio	43 voix
	Louis Baissac	39 „
	Adrien Wiehe	39 „
	Vivian Olivier	38 „
	Joseph Coutanceau	37 „
	Pierre de Sornay	33 „
	Julien D. de Spéville	25 „
	André Martin	25 „

Viennent ensuite : George Park, 21 voix ; Francis N. Coombes, 17 ; Adrien Hardy, 17 ; Octave Wiehe, 13 ; France Girard, 9.

Sont nommés auditeurs, par acclamation, MM. Marc de Chazal et Léon de Froberville.

L'ordre du jour étant épuisé, la séance est levée.

Compte rendu de la réunion générale du Vendredi 17 Mars 1944, à 13 heures, à l'Institut.

Présidence de M. André Martin, président.

Membres présents : MM. P. Gaston Antelme, Philippe d'Arifat, Louis et André Baissac, Alex Bax, Léon Bourgault du Caudray, André Carles, Joseph Coutanceau, Serge Dupont de Rivalz St Antoine, G. Guérandel, Octave d'Hotman de Villiers, Léon H. de Froberville, Eugène Lagesse, Alfred Leclézio, Guy Masson, Claude Noël, Vivian Olivier, G. Park, Hector Paturau, Régis Pilot, René Raffray jr., Marcel Régnaud, Julien D. de Spéville, H. Vaudin, Jean Vinson, Adrien Wiehe et P.O. Wiehe.

Invités : MM. H. R. Ebbels, Manager de Blyth Brothers & Co., et Philippe Couve.

Excusé : M. Pierre de Sornay.

Le Président ouvre la séance et passe la parole à M. Louis Baissac qui fait une causerie sur certaines observations d'ordre général et aussi d'ordre spécialisé, recueillies au cours de son voyage à l'Ile de la Réunion, en décembre 1942. Cette communication, fort instructive et intéressante, est très applaudie. La partie se rapportant à la conservation des sucres des campagnes 1940, 1941 et 1942 sera publiée ultérieurement.

L'ordre du jour étant épuisé, la séance est levée à 14 heures.

STAISTIQUES

10. PLUVIOMÉTRIE & TEMPÉRATURE

Pluviométrie (Pouces)

Localités / Mois	Nord							Centre					
	Grand' Baie	Pamplemousses	Pamplemousses (Normale)	Abercrombie	Abercrombie (Normale)	Ruisseau Rose	Belle Vue Maurel	Beau Bois (Moka)	Helvétia	Réduit	Réduit (Normale)	Curepipe*	Curepipe (Normale)†
Jan. 1944 ...	1.97	3.74	9.56	3.99	8.88	3.06	4.04	10.80	11.93	6.59	10.32	8.83	16.33
Fev. „ ...	11.39	8.03	8.74	11.56	7.17	21.56	8.42	18.02	21.97	13.99	10.95	20.08	17.28

Localités / Mois	Est				Ouest					Sud			
	Centre de Flacq	Camp de Masque	Palmar	G.R.S.E.	Port-Louis	Case Noyale	Beau-Bassin	Beau-Bassin (Normale)	Richelieu	Rose Belle	Riche-en-Eau	Camp Diable	Chemin Grenier
Jan. 1944 ...	7.69	5.56	4.15	2.83	2.64	—	3.05	6.71	2.19	16.20	13.12	11.58	7.65
Fev. „ ...	13.29	15.07	6.58	7.06	12.92	—	10.33	7.97	8.68	14.91	15.02	13.32	10.90

Température °C

Localités	Abercrombie		Beau-Bassin		Réduit			
Mois	Max.	Min.	Max.	Min.	Max.	Min.	Moy.	Nor.
Jan. 1944 ...	31.3	23.7	29.7	21.4	27.6	21.6	24.4	24.1
Fev. „ ...	30.9	23.3	29.8	22.4	27.7	22.3	24.6	24.3

* Collège Royal. † Jardin Botanique.

20. Final Compilation of the 1943 Sugar Crop.

(*Unit : 1 thousand metric tons*).

Districts	1943 Final Compilation	1942	1941	1940	1939	1938
Pamplemousses and Riv. du Rempart	77.64	73.60	81.19	66.65	42.18	76.60
Flacq	45.74	51.53	50.58	51.67	34.74	50.09
Moka	40.29	40.42	37.90	37.83	29.65	42.08
Plaines Wilhems ..	23.42	23.92	25.09	24.09	17.81	24.24
Black River	13.49	15.07	17.42	13.84	9.75	13.36
Savanne	55.71	61.36	54.40	58.16	47.63	55.49
Grand Port	54.73	64.98	57.10	64.01	47.70	59.45
Total	310.72	330.88	323.68	316.25	229.46	321.31

The total cane ground was 2,566,244 metric tons, and the average extraction of sugar per cent of cane worked out to 12.11.

The grades of sugar produced were as follows :

Raws	262,365 metric tons	or 84.4 o/o	of total
Vesous	47,751 „	15.4 o/o	„
Lows	613 „	0.2 o/o	„
Total ...	310,729 „	100.0 o/o	

A. DE SORNAY,

8th March, 1944.

Statistician.

Department of Agriculture.

30. PRODUCTION DES USINES EN 1943.

	Tonnes métriques
PAMPLEMOUSSES	
Beau Plan	8,773
Belle Vue (Harel) ...	5,725
Solitude	9,636
The Mount	13,680
RIVIÈRE DU REMPART	
Beau Séjour	5,695
Labourdonnais ...	10,763
Mon Loisir	12,054
St Antoine	11,316
FLACQ	
Beau Champ	8,002
Constance	12,714
Deep River	8,196
Queen Victoria ...	8,262
Union	8,561
MOKA	
Alma	10,985
Mon Désert	14,590
Sans Souci	14,714

	Tonnes métriques
PLAINES WILHEMS	
Highlands	10,718
Réunion	6,195
Trianon	6,510
RIVIÈRE NOIRE	
Médine	13,495
SAVANE	
Bel Ombre	6,022
Bénarès	7,718
Britannia	11,343
Saint Félix	6,036
Saint Aubin	4,965
Savannah	8,670
Terracine	7,270
Union	3,683
GRAND PORT	
Beau Vallon	5,453
Deux Bras	3,440
Ferney	6,575
Mon Désert & Mon Trésor	12,266
Rose Belle	7,088
Riche en Eau	3,831
Savinia	10,055
Valona	5,724

40. YIELD OF MAIZE. MARCH 1943 PLANTATIONS

Estates	*Yield/Arpent — Kgs. 12% moisture.*
PAMPLEMOUSSES	
The Mount	615
FLACQ	
Beau Champ	325
Constance	300
Teeluck Bros.	380
Union Flacq	225
Petite Etoile	180
Average : 300 Kgs./Arpent.	
MOKA	
Sans Souci	130
BLACK RIVER	
Médine	400
Chébel	210
Gros Cailloux	415
Plaines Wilhems S.E.	160
Tamarin	500
Average : 343 Kgs./Arpent.	
SAVANNE	
Bel Ombre	520
Bénarès	225
Britannia	540
Savannah	760
Joli Bois	150
Terracine	780
Bel Air	570
St. Aubin	425
Average : 520 Kgs./Arpent.	
GRAND PORT	
Savinia	430
Mon Trésor	365
Beau Vallon	770
Ferney	370
Average : 490 Kgs./Arpent.	

Weighted Average. Whole island = 445 Kgs./Arpent.

TABLEAU SYNOPTIQUE

RÉSULTATS DE LA COUPE 1943

(Compilation faite par le Service de Technologie Sucrière du Département d'Agriculture)

Nom et Numéro d'ordre des Sucreries	Cannes. Richesse	Cannes. Ligneux %	Jus du 1er Pression. °Brix	Jus du 1er Pression. Pureté apparente	Jus dilué. °Brix	Jus dilué. Quotient glucosique	Jus dilué. Pureté apparente	Jus dilué. Poids % cannes	SO₂ par litre jus sulfité : gr.	Jus du dernier Moulin. °Brix	Jus du dernier Moulin. Pureté apparente	Jus déféqué. Pureté apparente	Jus déféqué. pH	Dilution % jus non-dilué poids	Bagasse. Pol.	Bagasse. Humidité %	Bagasse. Ligneux %	Bagasse. Saccharose perdu % cannes	Bagasse. Saccharose % ligneux	Bagasse. Bagasse % cannes	Ecumes. Saccharose % gr.	Ecumes. Poids % cannes	Numéro d'ordre des Sucreries	Claires concentrées. °Brix	Claires concentrées. Pureté apparente	Jus absolu extrait % cannes	Saccharose dans le jus % saccharose des cannes	Saccharose perdu dans le jus % saccharose des cannes raisonné à une fibre de 12,5 %	Sucre base extrait % cannes	Sucre total extrait % cannes	Sucre base produit extrait % cannes	Sucre total extrait % cannes	Saccharose total extrait % cannes	Pol. moyenne des sucres	Saccharose extrait % Saccharose du jus	Saccharose extrait % Saccharose du jus ramenée à une pureté de 85	Saccharose extrait % Saccharose des cannes	Pertes industrielles réelles % cannes	Pertes totales réelles % cannes	Mélasse. Poids % Cannes	Mélasse. Pol. Clerget	Nombre de jours de roulaison	Cannes écrasées à l'heure	Nombre de cylindres du tandem	Coupe cannes	Moyenne d'heures de travail des moulins par 24 heures	Numéro d'ordre des Sucreries
30 Belle Vue ...	15.69	11.8	21.6	88.8	17.1	3.8	86.5	101.4	—	4.4	76.7	88.3	7.2	20.6	2.92	43.4	52.8	0.65	5.52	22.4	9.8	—	30	53.3	88.3	84.1	94.6	94.2	—	13.42	—	13.42	13.22	98.5	87.9	86.3	84.2	1.82	2.47	—	43.7	106	37.1	11	1	11.8	30
21 Savannah ...	15.32	14.0	20.8	90.9	17.0	2.1	87.3	103.1	—	3.1	75.3	88.0	7.3	25.8	2.58	43.9	52.9	0.69	4.87	27.1	8.5	1.31	21	54.9	86.1	81.4	95.4	95.9	—	13.40	—	13.40	13.22	98.7	90.4	88.3	86.3	1.49	2.10	—	39.1	118	42.3	11	1	12.9	21
32 La Boardonnais* ...	15.28	12.2	21.6	90.2	16.2	2.8	87.9	102.1	—	3.1	76.3	89.6	7.3	22.5	2.77	45.6	50.7	0.66	5.46	24.0	9.1	2.06	32	62.0	87.3	83.3	95.7	95.6	—	13.52	—	13.52	13.33	98.6	91.1	88.7	87.3	1.29	1.95	—	39.6	131	42.4	11	1	14.3	32
36 Beau-Plan* ...	15.10	13.0	21.3	88.9	17.3	2.1	86.9	94.4	—	5.3	78.0	87.2	7.2	15.6	3.21	44.6	51.2	0.81	6.26	25.4	8.6	—	36	58.1	85.3	81.7	94.6	94.8	—	12.94	—	12.94	12.74	98.5	89.1	87.3	84.3	1.55	2.36	—	40.7	118	33.8	11	1	17.0	36
2 Beau Séjour* ...	15.06	13.8	21.1	91.6	16.3	2.0	88.6	99.9	1.20	3.7	73.9	88.6	6.7	22.0	2.54	42.6	54.0	0.64	4.70	25.5	9.1	—	2	61.8	88.5	81.9	95.8	93.3	4.44	8.83	—	13.27	13.24	98.8	90.9	87.5	87.0	1.18	1.82	—	36.2	119	31.8	11	1	12.2	2
24 Bénarès ...	14.83	13.0	20.7	89.2	16.2	2.8	86.2	100.3	—	3.6	76.9	86.6	7.0	22.3	3.23	43.6	52.4	0.80	6.16	24.7	10.8	—	24	60.3	86.3	82.0	94.6	94.8	—	12.81	—	12.81	12.61	98.4	88.4	87.2	85.0	1.42	2.22	—	39.1	134	34.4	11	1	13.1	24
26 Mon Loisir ...	14.65	13.5	20.8	89.9	15.9	—	87.1	100.3	—	2.8	80.0	88.0	6.8	22.9	2.73	44.5	51.8	0.71	5.27	26.0	7.0	—	26	48.1	88.0	81.6	95.1	95.5	—	12.88	—	12.88	12.67	98.4	90.9	89.2	86.4	1.27	1.98	—	40.2	129	48.8	14	1	16.0	26
29 Deux Bras* ...	14.50	13.1	20.3	90.3	16.2	3.4	86.9	97.1	—	5.8	78.4	88.1	7.3	18.9	3.10	44.2	51.8	0.78	5.98	25.3	7.4	—	29	58.5	87.3	81.6	94.6	94.9	—	12.20	—	12.20	12.00	98.3	87.4	85.3	82.7	1.72	2.59	—	39.9	107	25.0	9	1	10.5	29
25 The Mount* ...	14.46	12.4	20.4	87.7	16.6	3.1	84.8	96.2	0.23	4.4	73.0	—	—	16.3	2.82	44.9	51.2	0.68	5.50	24.2	—	—	25	—	—	82.7	95.2	95.1	—	12.51	—	12.51	12.32	98.5	90.6	90.7	86.2	1.46	2.14	—	34.3	132	55.0	11	1	15.0	25
6 Mon Trésor* ...	14.37	13.3	20.8	89.4	15.5	2.9	86.2	101.9	—	3.9	74.9	86.9	7.1	24.6	2.72	45.7	50.7	0.72	5.36	26.3	7.7	—	6	62.7	87.4	81.7	95.0	95.3	—	12.23	—	12.23	12.04	98.4	88.2	87.1	83.7	1.61	2.33	—	40.6	132	57.6	9	2	12.1	6
15 Bel Ombre ...	14.35	12.9	20.0	90.0	14.4	2.2	87.7	107.5	—	3.9	75.5	88.6	7.3	31.2	3.00	44.5	51.6	0.75	5.81	25.0	7.4	—	15	59.1	88.9	82.9	94.7	94.9	—	12.56	—	12.56	12.36	98.5	90.9	88.5	86.2	1.24	1.99	—	39.7	109	38.3	9	1	11.4	15
31 Solitude ...	14.28	12.5	20.6	88.5	15.6	3.0	84.7	108.4	—	4.0	67.9	85.2	7.1	30.4	2.50	44.9	51.4	0.61	4.86	24.3	7.1	—	31	59.2	85.6	83.2	95.7	95.7	—	12.25	—	12.25	12.07	98.5	88.4	88.6	84.5	1.60	2.21	—	41.7	121	40.0	14	1	16.2	31
20 Terracine* ...	14.27	11.7	19.8	89.5	15.8	3.2	86.2	99.5	—	3.6	75.3	86.7	7.1	19.7	3.25	44.3	51.4	0.74	6.33	22.8	9.1	—	20	53.9	86.7	83.1	94.8	94.4	—	12.31	—	12.31	12.13	98.3	89.5	83.4	84.8	1.40	2.14	—	43.4	112	42.2	11	1	12.5	20
12 Savinia* ...	14.14	13.1	20.1	90.0	16.0	3.2	87.9	95.3	—	3.4	73.2	88.4	7.4	16.9	2.82	45.6	50.5	0.73	5.58	26.0	8.7	1.01	12	55.2	88.7	81.5	94.8	95.0	—	12.20	—	12.20	12.13	98.7	90.5	87.9	85.7	1.23	2.01	—	36.7	126	48.4	12	2	13.4	12
34 St. Antoine ...	14.10	15.0	21.3	89.6	17.0	4.0	85.4	91.8	0.93	5.4	75.4	85.9	—	15.4	2.87	42.9	53.3	0.80	5.39	28.1	—	—	34	53.5	86.8	79.5	94.3	95.3	11.54	—	—	11.54	11.52	99.8	86.6	86.1	81.6	1.78	2.48	—	42.2	122	42.0	11	1	19.0	34
19 Union ...	14.09	14.2	20.4	89.6	15.8	3.3	86.4	97.8	—	4.1	76.5	86.7	7.1	20.6	2.80	42.9	53.7	0.74	5.21	26.5	9.2	—	19	60.3	86.7	81.1	94.8	95.6	—	12.16	—	12.16	11.93	98.3	89.6	83.3	84.8	1.39	2.13	—	44.4	96	32.3	11	1	9.8	19
18 St Aubin ...	14.03	12.2	19.5	88.4	15.7	2.9	86.5	97.6	—	5.9	78.1	86.8	7.5	18.2	3.32	43.6	52.2	0.77	6.35	23.3	8.8	—	18	54.8	86.7	82.5	94.5	94.4	0.03	11.52	0.28	11.83	11.64	98.6	87.9	86.3	83.1	1.62	2.30	—	—	106	43.1	8	1	9.2	18
7 Mon Désert* ...	14.02	10.6	19.1	88.4	15.4	3.5	86.7	100.3	—	3.1	77.0	86.2	7.2	17.9	2.84	47.0	49.3	0.61	5.76	21.5	6.7	1.46	7	56.8	86.2	85.0	95.6	94.8	—	12.15	—	12.15	11.95	98.3	89.1	87.4	85.2	1.46	2.07	3.40	42.1	134	56.7	14	1	15.8	7
3 Highlands* ...	14.00	10.8	18.8	90.2	15.2	3.2	87.6	101.3	—	3.4	78.5	88.1	7.3	18.5	2.69	43.6	53.0	0.55	5.07	20.4	7.7	1.52	3	61.1	88.4	85.4	96.1	95.4	—	12.58	—	12.58	12.36	98.2	91.8	89.8	88.3	1.09	1.64	—	36.0	126	45.1	11	1	15.0	3
11 Queen Victoria* ...	13.99	11.6	19.2	89.3	14.8	4.4	86.8	104.0	—	3.6	73.9	87.8	7.4	23.5	2.62	43.8	52.7	0.53	4.96	22.1	8.8	—	11	46.0	87.8	84.2	95.9	95.5	—	12.32	—	12.32	12.14	98.5	90.5	89.0	86.8	1.27	1.85	—	37.5	114	35.9	11	1	16.4	11
17 Deep River* ...	13.94	13.0	19.7	88.9	15.2	3.8	86.4	99.9	—	4.4	76.9	86.7	7.8	23.0	3.25	45.4	50.4	0.84	6.45	25.8	6.9	1.80	17	53.1	86.4	81.2	94.0	94.3	—	11.91	—	11.91	11.73	98.5	89.5	88.2	84.1	1.37	2.21	—	39.0	119	39.3	11	1	14.7	17
1 Britannia* ...	13.81	12.1	18.8	87.3	15.6	4.0	86.1	98.1	—	4.4	76.0	86.6	7.2	17.4	2.67	43.9	52.6	0.62	5.04	22.9	8.6	—	1	67.3	84.6	83.6	95.5	95.3	—	11.99	0.13	12.12	11.90	93.2	90.2	89.2	86.1	1.29	1.91	—	34.5	133	43.8	11	1	16.1	1
4 Beau Champ* ...	13.78	15.0	20.1	88.2	15.3	4.1	85.8	98.3	—	3.9	76.0	86.0	7.1	23.4	2.75	43.2	53.2	0.79	5.16	28.2	7.0	—	4	57.1	85.6	79.7	94.3	95.4	—	11.75	—	11.75	11.60	93.7	89.2	88.5	84.1	1.39	2.18	—	37.9	125	41.4	11	1	13.1	4
13 Trianon ...	13.77	13.2	20.2	90.5	16.0	2.6	86.0	95.3	—	3.6	79.7	89.0	7.1	15.7	2.47	45.3	51.5	0.63	4.79	25.7	8.4	1.25	13	56.0	88.0	82.4	95.4	95.7	—	11.58	0.23	11.81	11.63	98.5	83.5	87.5	84.4	1.51	2.14	—	40.7	121	31.6	14	1	15.8	13
10 Constance* ...	13.76	12.9	19.9	88.0	15.5	3.8	84.2	100.0	—	3.2	72.7	85.0	7.2	21.7	2.72	43.5	52.7	0.67	5.15	24.4	9.0	—	10	54.9	84.2	82.2	95.2	95.4	—	11.79	—	11.79	11.61	98.5	88.7	89.2	84.4	1.48	2.15	—	37.0	126	42.5	14	1	20.1	10
27 Beau Vallon* ...	13.68	13.1	19.9	86.2	15.6	5.0	83.9	98.1	—	4.5	71.4	84.3	7.1	20.4	2.81	45.2	50.9	0.72	5.52	25.8	8.4	—	27	60.7	84.4	84.5	94.7	95.0	—	11.47	—	11.47	11.26	98.2	87.7	88.7	83.1	1.70	2.42	—	33.6	111	33.7	9	2	12.7	27
8 Alma* ...	13.68	12.2	18.9	90.1	14.8	2.7	87.1	100.7	—	3.5	74.6	87.3	7.4	21.4	2.77	44.7	51.6	0.65	5.36	23.7	6.7	1.65	8	54.1	87.6	82.9	95.2	95.0	—	12.01	—	12.01	11.82	98.4	90.6	89.0	85.3	1.21	1.86	—	39.0	117	48.8	12	2	16.0	8
22 St Félix ...	13.65	12.4	19.4	88.5	15.5	4.7	85.5	97.9	—	3.4	72.9	85.9	7.3	18.6	2.76	45.3	50.9	0.67	5.42	24.4	6.8	—	22	54.6	86.0	82.5	95.0	95.0	—	11.86	—	11.86	11.66	98.3	89.7	89.2	85.3	1.23	1.99	—	41.6	112	31.9	12	1	14.2	22
23 Ferney* ...	13.63	12.9	19.7	88.4	15.8	4.0	84.7	96.6	1.22	3.7	78.9	84.8	6.6	17.2	2.81	44.6	51.9	0.69	5.41	24.9	7.5	—	23	55.5	84.2	82.4	94.9	95.1	11.46	—	—	11.46	11.44	99.8	88.3	88.5	83.8	1.50	2.19	—	34.2	119	38.5	12	1	13.4	23
5 Rose-Belle* ...	13.62	12.3	18.8	90.0	14.5	3.6	87.2	102.4	—	3.8	77.7	87.3	7.3	23.4	2.92	43.0	53.3	0.68	5.59	23.1	6.1	1.18	5	56.1	87.3	83.0	95.0	94.9	—	11.58	—	11.58	11.41	98.5	88.2	86.3	83.8	1.53	2.21	—	38.3	108	41.7	11	2	13.6	5
14 Réunion ...	13.31	12.4	18.2	88.7	14.9	3.0	86.1	97.6	—	3.6	77.1	87.0	7.4	17.4	2.54	44.0	52.7	0.60	4.82	23.6	7.2	1.03	14	60.4	87.3	83.1	95.5	95.5	—	11.68	—	11.68	11.51	98.5	90.5	89.6	86.4	1.20	1.80	—	38.9	110	41.3	12	1	11.7	14
35 Médine* ...	13.29	15.4	19.9	86.9	16.8	3.8	83.8	95.9	0.85	3.7	69.0	83.8	—	22.1	2.59	44.2	51.6	0.76	5.02	29.8	9.4	1.80	35	52.0	85.1	78.5	94.3	95.5	10.67	0.14	0.04	10.85	10.74	99.0	85.6	87.7	80.9	1.79	2.55	3.40	39.8	139	52.0	16	1	17.1	35
9 Sans Souci* ...	13.23	12.3	18.8	88.6	15.3	4.7	86.1	95.2	—	2.8	68.5	86.5	8.2	16.1	2.76	47.9	48.1	0.71	5.72	25.6	9.0	1.23	9	55.7	85.4	82.0	94.7	94.6	—	11.23	0.04	11.27	11.11	98.5	88.6	87.5	83.8	1.41	2.12	2.90	38.1	127	64.7	14	1	15.9	9
33 Union-Flacq ...	13.22	12.6	19.0	87.2	15.3	4.7	83.7	98.2	—	3.4	79.0	85.2	7.2	18.5	2.65	44.7	51.9	0.64	5.11	24.2	6.3	—	33	60.0	85.3	82.8	95.1	95.0	—	11.59	0.03	11.62	11.44	98.4	90.9	91.7	86.5	1.14	1.78	—	40.0	114	49.8	14	1	12.6	33
28 Riche-en-Eau* ...	13.12	15.3	19.8	88.1	15.3	4.3	84.2	95.1	0.57	4.5	73.1	83.0	—	21.6	2.90	45.6	50.4	0.87	5.60	30.3	8.0	—	28	63.2	84.4	78.2	93.4	94.8	9.93	0.37	0.03	10.33	10.27	99.6	83.9	84.8	78.3	1.98	2.85	—	—	120	32.2	11	1	9.6	28
16 Valona ...	12.43	13.4	18.3	86.2	15.3	4.4	83.2	92.9	—	3.8	71.5	83.5	6.8	13.6	2.35	44.5	52.2	0.60	4.50	25.6	7.4	—	16	55.6	83.6	81.8	95.2	95.7	—	10.50	—	10.50	10.33	98.4	87.3	89.0	83.2	1.50	2.10	—	—	140	29.6	12	1	13.1	16
Moyenne arithmétique.	14.07	12.92	19.93	88.9	15.7	3.5	86.1	99.0	0.83	3.9	75.3	86.6	7.2	20.4	2.81	44.5	51.8	0.70	5.42	25.0	8.0	1.44	...	56.7	86.5	82.1	95.0	95.1	1.34	10.73	0.02	12.09	11.92	93.6	89.1	86.0	85.4	1.45	2.15	3.23	39.2	120	42.1	...	1	14.0	...
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